Access DB# 79497

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Ferko, Kathryn P Examiner #: 78998 Date: 11/05/02
Art Unit: 3743 Phone Number 306-3454 Serial Number: 09/787,498
Mail Box and Bldg/Room Location: PK1 11E50 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Surface micromachined Microneedles

Inventors (please provide full names): Frazier A Bruns
Brazzle JD

Earliest Priority Filing Date: 3/16/2001

For Sequence Searches Only *Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Microneedles, deposition, photoresist, electroplating, Microchannels, cross-sectional area of 25 μm^2 to 5000 μm^2, array, mold, planar

class 604/272.000

may they are made

****

STAFF USE ONLY

Searcher: JEANNE HORRIGAN
Searcher Phone #: 305-5934
Searcher Location: CP2-2C08
Date Searcher Picked Up: 11/6/02
Date Completed: 11/8
Searcher Prep & Review Time: 155
Clerical Prep Time:
Online Time: 50

Type of Search

NA Sequence (#)
AA Sequence (#)
Structure (#)
Bibliographic ✓
Litigation
Fulltext ✓
Patent Family
Other

Vendors and cost where applicable

STN ✓
Dialog ✓
Questel/Orbit
Dr.Link
Lexis/Nexis
Sequence Systems
WWW/Internet
Other (specify)

PTO-1590 (8-01)

11-6
2:20

1: J Pharm Sci 1998 Aug;87(8):922-5

Erratum in:

- J Pharm Sci 1998 Sep;88(9):948

Microfabricated microneedles: a novel approach to transdermal drug delivery.

Henry S, McAllister DV, Allen MG, Prausnitz MR.

Institute for Bioengineering and Bioscience, School of Chemical Engineering, Georgia Institute of Technology, Atlanta, Georgia 30332, USA.

Although modern biotechnology has produced extremely sophisticated and potent drugs, many of these compounds cannot be effectively delivered using current drug delivery techniques (e.g., pills and injections). Transdermal delivery is an attractive alternative, but it is limited by the extremely low permeability of skin. Because the primary barrier to transport is located in the upper 10-15 micron of skin and nerves are found only in deeper tissue, we used a reactive ion etching microfabrication technique to make arrays of microneedles long enough to cross the permeability barrier but not so long that they stimulate nerves, thereby potentially causing no pain. These microneedle arrays could be easily inserted into skin without breaking and were shown to increase permeability of human skin in vitro to a model drug, calcein, by up to 4 orders of magnitude. Limited tests on human subjects indicated that microneedles were reported as painless. This paper describes the first published study on the use of microfabricated microneedles to enhance drug delivery across skin.

PMID: 9687334 [PubMed - indexed for MEDLINE]

8/5/1 (Item 1 from le: 2)
DIALOG(R)File 2:INSPEC

6332317 INSPEC Abstract Number: A1999-19-8770G-004, B1999-10-7520-003
Title: Fluid-coupled hollow metallic micromachined needle **arrays**
Author(s): Brazzle, J.D.; Papautsky, I.; Frazier, A.B.
Author Affiliation: Dept. of Bioeng., Utah Univ., Salt Lake City, UT, USA
Journal: Proceedings of the SPIE - The International Society for Optical Engineering Conference Title: Proc. SPIE - Int. Soc. Opt. Eng. (USA) vol.3515 p.116-24
Publisher: SPIE-Int. Soc. Opt. Eng,
Publication Date: 1998 Country of Publication: USA
CODEN: PSISDG ISSN: 0277-786X
SICI: 0277-786X(1998)3515L.116:FCHM;1-7
Material Identity Number: C574-1998-300
U.S. Copyright Clearance Center Code: 0277-786X/98/$10.00
Conference Title: Microfluidic Devices and Systems
Conference Sponsor: SPIE
Conference Date: 21-22 Sept. 1998 Conference Location: Santa Clara, CA, USA
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Theoretical (T); Experimental (X)
Abstract: In this paper, fluid coupled metallic **micromachined needle** arrays are designed, fabricated, and characterized. The described hollow metallic needle arrays include design features such as dual structural supports and needle coupling channels. The supports and needle walls are formed by micro-electroformed metal to provide increased structural integrity. The needle coupling channels are used to fluidically interconnect the needles and allow pressure equalization and balance of fluid flow between needles. In addition, the needle coupling channels minimize the effects of restricted needle passages by providing a redistribution point for fluid flow between them. The optimum design for the needle coupling channels is investigated using an ANSYS finite element numerical model. The significance of this work includes the development of hollow, metallic **micromachined needle** arrays for biomedical applications, as well as, a discussion of structural, fluidic, and biological design considerations. (19 Refs)
Subfile: A B
Descriptors: drug delivery systems; electroforming; finite element analysis; microfluidics; micromachining
Identifiers: hollow metallic needle arrays; fluid coupled metallic **micromachined needle** arrays; dual structural supports; needle coupling channels; micro-electroformed metal; structural integrity; fluidic interconnect; pressure equalization; balance of fluid flow; flow redistribution point; optimum design; ANSYS finite element numerical model; biomedical applications; biological design considerations; fluidic design considerations; structural design considerations; **microchannels** ; Navier-Stokes equation; pain-free drug delivery device
Class Codes: A8770G (Patient care and treatment); A0710C (Micromechanical devices and systems); B7520 (Patient care and treatment); B2575D (Design and modelling of micromechanical devices); B2575F (Fabrication of micromechanical devices)

8/5/2 (Item 1 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

05497788 E.I. No: EIP00025057909
Title: Hollow metallic micromachined needles **with multiple output ports**
Author: Brazzle, John D.; Mohanty, Swomitra; Frazier, A. Bruno
Corporate Source: Univ of Utah, Salt Lake City, UT, USA
Conference Title: Proceedings of the 1999 Microfluidic Devices and

Systems II
Conference Location: Santa Clara, CA, USA Conference Date: 19990920-19990921
Sponsor: SPIE
E.I. Conference No.: 56254
Source: Proceedings of SPIE - The International Society for Optical Engineering v 3877 1999. p 257-266
Publication Year: 1999
CODEN: PSISDG ISSN: 0277-786X
Language: English
Document Type: JA; (Journal Article) Treatment: G; (General Review); T; (Theoretical); X; (Experimental)
Journal Announcement: 0004W4
Abstract: In this paper, hollow metallic **micromachined needles** with multiple output ports are designed, fabricated, characterized, and packaged. The hollow metallic needles include design features such as tapered needle tips and multiple output ports on the bottom and top of each needle. The needle tip and shaft are formed by microelectroformed metal. The flow characteristics of the needles are currently being experimentally investigated and modeled using a finite element numerical model. The experimental results and theoretical models will be presented as part of this paper. The **micromachined needles** can be fabricated on a variety of substrates and can use micro-electroformed palladium as the structural material. The use of palladium as a structural material provides high mechanical strength and durability, as well as, biocompatibility for use in biomedical applications. The cross-sectional dimensions of individual needle tips begin at less than 10 mu m in width and 15 mu m in height and then taper to 200 mu m in width and 60 mu m in height. The significance of this work includes the development of hollow metallic **micromachined needles** for biomedical applications, as well as, a discussion of structural, fluidic, and packaging design considerations. (Author abstract) 14 Refs.
Descriptors: *Fluidic devices; Microelectromechanical devices; Micromachining; Mathematical models; Finite element method; Palladium; Strength of materials; Durability; Biocompatibility
Identifiers: Microneedles; **Microchannels** ; Microfluidic systems
Classification Codes:
632.2 (Hydraulic Equipment & Machinery); 732.1 (Control Equipment); 601.1 (Mechanical Devices); 704.1 (Electric Components); 604.2 (Machining Operations)
632 (Hydraulics & Pneumatics); 732 (Control Devices); 601 (Mechanical Design); 704 (Electric Components & Equipment); 714 (Electronic Components); 604 (Metal Cutting & Machining)
63 (FLUID DYNAMICS & VACUUM TECHNOLOGY); 73 (CONTROL ENGINEERING); 60 (MECHANICAL ENGINEERING); 70 (ELECTRICAL ENGINEERING); 71 (ELECTRONICS & COMMUNICATIONS)

8/5/3 (Item 2 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

05231786 E.I. No: EIP99024567811
Title: Fluid-coupled hollow metallic microfabricated needle arrays
Author: Brazzle, J.D.; Papautsky, I.; Frazier, A.B.
Corporate Source: Univ of Utah, Salt Lake City, UT, USA
Conference Title: Proceedings of the 1998 Conference on Microfluidic Devices and Systems
Conference Location: Santa Clara, CA, USA Conference Date: 19980921-19980922
Sponsor: SPIE
E.I. Conference No.: 49721
Source: Proceedings of SPIE - The International Society for Optical Engineering v 3515 1998. SPIE, Bellingham, WA, USA. p 116-124
Publication Year: 1998
CODEN: PSISDG ISSN: 0277-786X
Language: English

Document Type: CA; (C erence Article) Treatment: X Experimental)
Journal Announcement: 9904W2

Abstract: In this paper, fluid coupled metallic **micromachined needle** arrays are designed, fabricated, and characterized. The described hollow metallic needle arrays include design features such as dual structural supports and needle coupling channels. The supports and needle walls are formed by micro-electroformed metal to provide increased structural integrity. The needle coupling channels are used to fluidically interconnect the needles and allow pressure equalization and balance of fluid flow between needles. In addition, the needle coupling channels minimize the effects of restricted needle passages by providing a redistribution point for fluid flow between them. The optimum design for the needle coupling channels is investigated using an ANSYS finite element numerical model. The significance of this work includes the development of hollow, metallic **micromachined needle** arrays for biomedical applications, as well as, a discussion of structural, fluidic, and biological design considerations. (Author abstract) 19 Refs.

Descriptors: **Micromachining** ; Arrays; **Needles** ; Flow of fluids; Design; Biomedical equipment

Identifiers: **Microchannels**

Classification Codes:

604.2 (Machining Operations); 631.1 (Fluid Flow, General); 462.1 (Biomedical Equipment, General)

604 (Metal Cutting & Machining); 631 (Fluid Flow & Hydrodynamics); 462 (Medical Engineering & Equipment)

60 (MECHANICAL ENGINEERING); 63 (FLUID DYNAMICS & VACUUM TECHNOLOGY); 46 (BIOENGINEERING)

24/6/1 (Item 1 fro ile: 155)
07829529 93353426 PMID: 8350276
Permeability of disrupted cerebral microvessels in the frog.
Feb 1993

24/6/2 (Item 2 from file: 155)
07467250 92407905 PMID: 1527794
A 360 degrees single-axis tilt stage for the high-voltage electron microscope.
Jul 1992

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?show files;ds;logoff
File 155:MEDLINE(R) 1966-2002/Nov W1
File 144:Pascal 1973-2002/Nov W1
         (c) 2002 INIST/CNRS
File   5:Biosis Previews(R) 1969-2002/Nov W1
         (c) 2002 BIOSIS
File   6:NTIS 1964-2002/Nov W1
         (c) 2002 NTIS, Intl Cpyrght All Rights Res
File   2:INSPEC 1969-2002/Nov W1
         (c) 2002 Institution of Electrical Engineers
File   8:Ei Compendex(R) 1970-2002/Oct W4
         (c) 2002 Engineering Info. Inc.
File  99:Wilson Appl. Sci & Tech Abs 1983-2002/Sep
         (c) 2002 The HW Wilson Co.
File  65:Inside Conferences 1993-2002/Nov W1
         (c) 2002 BLDSC all rts. reserv.
File  73:EMBASE 1974-2002/Nov W1
         (c) 2002 Elsevier Science B.V.
File  34:SciSearch(R) Cited Ref Sci 1990-2002/Nov W2
         (c) 2002 Inst for Sci Info
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info
File  94:JICST-EPlus 1985-2002/Sep W1
         (c)2002 Japan Science and Tech Corp(JST)
File  35:Dissertation Abs Online 1861-2002/Oct
         (c) 2002 ProQuest Info&Learning
File 440:Current Contents Search(R) 1990-2002/Nov 07
         (c) 2002 Inst for Sci Info
File  42:Pharmaceuticl News Idx 1974-2002/Nov W1
         (c)2002 ProQuest Info&Learning
File  71:ELSEVIER BIOBASE 1994-2002/Nov W1
         (c) 2002  Elsevier Science B.V.
File  62:SPIN(R) 1975-2002/Sep W5
         (c) 2002 American Institute of Physics
File  50:CAB Abstracts 1972-2002/Sep
         (c) 2002 CAB International

Set     Items   Description
S1         69   MICRONEEDLE? ?(3N)(ARRAY? ? OR INTERCONNECT? OR CONNECT? OR
                JOIN OR JOINS OR JOINED OR JOINING)
S2         43   MICROMACHIN???(3N)NEEDLE? ?
S3         60   SUBSTRATE? ? (5N) PLANAR (S) PHOTORESIST?
S4      14857   MICROCHANNEL? ?
S5     785369   HOLLOW OR CAVITY OR CAVITIES
S6    1861008   SIDE OR SIDES OR SIDED
S7          3   S1:S2 AND S4
S8          3   RD (unique items)
S9      17095   MICROFABRICAT???
S10    293961   NEEDLE? ?
S11         0   (S9(3N)S10 AND S4) NOT S7
S12         0   (S1 OR S2 OR S9(3N)S10) AND S3
S13       968   MICRONEEDLE? ?
S14      1007   S2 OR S9(3N)S10 OR S13
S15         7   S14 AND S4
S16         4   S15 NOT S7
S17         2   RD (unique items)
```

(not relevant; contained silicon)

S18	294	NON()SI ON? ?
S19	0	S14 AND S18
S20	40	S6 AND S14
S21	275529	MICROMETER? ? OR MICROMETRE? ? OR MICRON? ? OR UM OR UM2
S22	6	S20 AND S21
S23	6	S22 NOT (S7 OR S15)
S24	2	RD (unique items)

7/8/1 (Item 1 from le: 16)
DIALOG(R)File 16:(c) 2002 The Gale Group. All rts. reserv.

09874807 Supplier Number: 87461082 (USE FORMAT 7 FOR FULLTEXT)
New developments improve transdermal delivery of drugs.(Brief Article)
June, 2002
Word Count: 2650
PUBLISHER NAME: Medical Economics/Thomson Healthcare
DESCRIPTORS: *Transdermal medication--Usage; Chemical industry--Usage; Angina pectoris--Care and treatment; Pharmaceutical industry--Products
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *2868796 (Nitroglycerine); 2834030 (Drug Delivery Systems)
INDUSTRY NAMES: HLTH (Healthcare - Medical and Health)
SIC CODES: 2892 (Explosives); 2834 (Pharmaceutical preparations)
NAICS CODES: 32592 (Explosives Manufacturing); 325412 (Pharmaceutical Preparation Manufacturing)

7/8/2 (Item 1 from file: 636)
DIALOG(R)File 636:(c) 2002 The Gale Group. All rts. reserv.

05296730 Supplier Number: 87461082 (USE FORMAT 7 FOR FULLTEXT)
New developments improve transdermal delivery of drugs.(Brief Article)
June, 2002
Word Count: 2650
PUBLISHER NAME: Medical Economics/Thomson Healthcare
DESCRIPTORS: *Transdermal medication--Usage Chemical industry--Usage Angina pectoris--Care and treatment Pharmaceutical industry--Products
EVENT NAMES: *330 (Product information)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *2868796 (Nitroglycerine); 2834030 (Drug Delivery Systems)
INDUSTRY NAMES: HLTH (Healthcare - Medical and Health)
SIC CODES: 2892 (Explosives); 2834 (Pharmaceutical preparations)
NAICS CODES: 32592 (Explosives Manufacturing); 325412 (Pharmaceutical Preparation Manufacturing)

7/8/3 (Item 1 from file: 88)
DIALOG(R)File 88:(c) 2002 The Gale Group. All rts. reserv.

05066109 SUPPLIER NUMBER: 54317192
Silicon-processed microneedles .
March, 1999

DESCRIPTORS: Nanotechnology--Usage; Drug delivery devices--Research; Fluidic devices--Equipment and supplies; Chemistry, Analytic--Equipment and supplies
SPECIAL FEATURES: illustration; Chart
FILE SEGMENT: AI File 88

16/8/1 (Item 1 from file: 47)
DIALOG(R)File 47:(c) 2002 The Gale group. All rts. reserv.

05403360 SUPPLIER NUMBER: 55206875 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Taking the "ouch" out of drug injections.(painless drug-injection technique)
August, 1999
WORD COUNT: 836 LINE COUNT: 00072

DESCRIPTORS: Injections, Hypodermic--Innovations; Injections--Technique; Drug delivery systems--Technique
FILE SEGMENT: MI File 47

16/8/2 (Item 2 from file: 484)
DIALOG(R)File 484:(c) 2002 ProQuest. All rts. reserv.

04361958 (USE FORMAT 7 OR 9 FOR FULLTEXT)
Taking the "ouch" out of drug injections
Aug 1999

DESCRIPTORS: Medical technology; Nanotechnology; Research & development; R&D; Injections
SPECIAL FEATURES: Photograph
COMPANY INFORMATION:
Georgia Institute of Technology

16/8/3 (Item 3 from file: 141)
DIALOG(R)File 141:(c) 2002 The HW Wilson Co. All rts. reserv.

04047805 H.W. WILSON RECORD NUMBER: BRGA99047805 (USE FORMAT 7 FOR FULLTEXT)
Taking the "ouch" out of drug injections.
AUGMENTED TITLE: use of microneedles
WORD COUNT: 844

DESCRIPTORS:
Injections
Aug. 1999 (19990800)

16/8/4 (Item 4 from file: 88)
DIALOG(R)File 88:(c) 2002 The Gale Group. All rts. reserv.

05169758 SUPPLIER NUMBER: 55241244
Rubber Mold Carves a Path to Micromachines.(silicone rubber does what photolithography cannot)(Brief Article)
July 2, 1999
WORD COUNT: 743 LINE COUNT: 00061

DESCRIPTORS: Photolithography--Innovations; Silicone rubber--Usage
FILE SEGMENT: MI File 47

16/8/5 (Item 5 from file: 95)
DIALOG(R)File 95:(c) 2002 FIZ TECHNIK. All rts. reserv.

01324338 E99060037229
Fabrication of array of hollow microcapillaries used for injection of genetic materials into animal/plant cells
(Die Herstellung von Hohlmikrokapillarenanordnungen zur Verwendung bei der Injektion genetischen Materials in tierische oder pflanzliche Zellen)
1999
DESCRIPTORS: FABRICATION; MANUFACTURING TECHNIQUE; HOLLOW BODIES; MICROSTRUCTURE; CAPILLARY; **MICRON** ; INJECTION; BLOOD; PLANTS--VEGETATION; CELL--BIOLOGY; MICROENGINEERING; CAVITY; SILICON; ORGANIC COMPOUNDS; PLASMA

ETCHING; ANIMAL; MICROMACHINING
IDENTIFIERS: DNA; HOHLMIKROKAPILLARE; MIKROKAMMER; Hohlkapillarenfertigung; Genmaterialinjektion

16/8/6 (Item 6 from file: 16)
DIALOG(R)File 16:(c) 2002 The Gale Group. All rts. reserv.

05702818 Supplier Number: 50153651 (USE FORMAT 7 FOR FULLTEXT)
Researchers envision pain-free drug delivery -- Plasma etch yields microneedle arrays
July 13, 1998
Word Count: 887
PUBLISHER NAME: CMP Publications, Inc.
EVENT NAMES: *310 (Science & research)
GEOGRAPHIC NAMES: *1USA (United States)
PRODUCT NAMES: *2834030 (Drug Delivery Systems)
INDUSTRY NAMES: BUSN (Any type of business); ELEC (Electronics); ENG (Engineering and Manufacturing)
NAICS CODES: 325412 (Pharmaceutical Preparation Manufacturing)

16/8/7 (Item 7 from file: 95)
DIALOG(R)File 95:(c) 2002 FIZ TECHNIK. All rts. reserv.

01228385 I98072320300
A suspended microchannel with integrated temperature sensors for high-pressure flow studies
1998
DESCRIPTORS: BORON COMPOUNDS; CALIBRATION--ADJUST TO STANDARD; FLOW MEASUREMENT; MICROSENSORS; SEMICONDUCTOR TECHNOLOGY; TEMPERATURE MEASUREMENT; TEMPERATURE SENSORS; NTC RESISTOR; **MICRON** ; NITROGEN
IDENTIFIERS: SCHWEBENDER MIKROKANAL; INTEGRIERTER TEMPERATURSENSOR; HOCHDRUCKSTROEMUNG; FREISTEHENDER MIKROKANAL; INTEGRIERTER SENSOR; STROEMUNGSBESCHLEUNIGUNG; NICHTPARABOLISCHES GESCHWINDIGKEITSPROFIL; INKOMPRESSIBLE WASSERSTROEMUNGSMESSUNG; TEMPERATURDATEN; 20 MIKROMETER BEREICH; 4 MILLIMETER BEREICH; schwebender Mikrokanal; Temperatursensor; Hochdruckstroemung

16/8/8 (Item 8 from file: 88)
DIALOG(R)File 88:(c) 2002 The Gale Group. All rts. reserv.

04808788 SUPPLIER NUMBER: 19905239
Toothsome technology: scientists strive to improve dental materials.(includes related information on use of surface sealants on microchannels)
Oct 11, 1997
WORD COUNT: 1513 LINE COUNT: 00122

DESCRIPTORS: Dental amalgams--Research; Dental materials--Research; Dental ceramics--Research; Dental bonding--Research; Pit and fissure sealants (Dentistry)--Research
SPECIAL FEATURES: chart; illustration
FILE SEGMENT: MI File 47

16/8/9 (Item 9 from file: 98)
DIALOG(R)File 98:(c) 2002 The HW Wilson Co. All rts. reserv.

03541132 H.W. WILSON RECORD NUMBER: BGSA97041132
Filling microchannels **instead of** cavities .

DESCRIPTORS:
Pit and fissure sealants (Dentistry)
Oct. 11 1997 (19971011)

16/8/10 (Item 10 from file: 636)
DIALOG(R)File 636:(c) 2002 The Gale Group. All rts. reserv.

03518731 Supplier Number: 47265368 (USE FORMAT 7 FOR FULLTEXT)
Spatial Light Modulators
April 1, 1997
Word Count: 596
PUBLISHER NAME: Business Communications Company, Inc.
INDUSTRY NAMES: BUSN (Any type of business); ENG (Engineering and Manufacturing)

16/8/11 (Item 11 from file: 88)
DIALOG(R)File 88:(c) 2002 The Gale Group. All rts. reserv.

03523464 SUPPLIER NUMBER: 14734658
Nanometer spatial resolution achieved in hard x-ray imaging and Laue diffraction experiments.
Jan 14, 1994
WORD COUNT: 2195 LINE COUNT: 00174

DESCRIPTORS: X-rays--Innovations; Resolution (Optics)--Innovations; X-ray microanalysis--Innovations
SPECIAL FEATURES: illustration; photograph; graph
FILE SEGMENT: MI File 47

16/8/12 (Item 12 from file: 88)
DIALOG(R)File 88:(c) 2002 The Gale Group. All rts. reserv.

02944640 SUPPLIER NUMBER: 12783244
Nanochannel array glass.
Oct 30, 1992
WORD COUNT: 1897 LINE COUNT: 00170

DESCRIPTORS: Nanotechnology--Research; Glass--Composition
SPECIAL FEATURES: illustration; photograph; chart
FILE SEGMENT: MI File 47

16/8/13 (Item 13 from file: 442)
DIALOG(R)File 442:(c)2002 Amer Med Assn -FARS/DARS apply. All rts. reserv.

00055302

Advances in Clinical Micromanipulation of Gametes and Embryos (Article)
1992;
?t16/3,k/5,6,7,12

16/3,K/5 (Item 5 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management
(c) 2002 FIZ TECHNIK. All rts. reserv.

01324338 E99060037229
Fabrication of array of hollow microcapillaries used for injection of genetic materials into animal/plant cells
(Die Herstellung von Hohlmikrokapillarenanordnungen zur Verwendung bei der Injektion genetischen Materials in tierische oder pflanzliche Zellen)
Chun, K; Hashiguchi, G; Toshiyoshi, H; Fujita, H
The Univ. of Tokyo, J
Japanese Journal of Applied Physics, Part 2 Letters, v38, n3A, pp279-281, 1999
Document type: journal article Language: English
Record type: Abstract
ISSN: 0021-4922

ABSTRACT:
...injection of DNA cells has been proposed. The injection system is composed of two components: **hollow** microcapillaries for injection and microchambers for trapping cells. The **hollow** microcapillary array, the most important part of the system has been fabricated. In this paper a micromachined DNA injection system and the fabrication of **hollow** microcapillary array are presented. Bosch deep reactive ion etching (RIE) etching was used to etch small, deep holes, approximately 5 **micron** in diameter and 100 **micron** in depth, on a silicon substrate, and enabled the fabrication of microcapillaries with **microchannels** inside. The fabricated **hollow** microcapillaries are 1 **micron** in thickness, 30 **micron** in length and 5 **micron** in diameter, and are made of SiO2. The height of the microcapillaries can be easily...

...silicon etching in TMAH solution and making holes on tips of microcapillaries, the fabrication of **hollow** microcapillaries is completed. **Hollow** microcapillary arrays can also be used in some applications other than DNA injection, such as **microchannels** in fluid delivery systems.
DESCRIPTORS: FABRICATION; MANUFACTURING TECHNIQUE; HOLLOW BODIES; MICROSTRUCTURE; CAPILLARY; **MICRON** ; INJECTION; BLOOD; PLANTS...

16/3,K/6 (Item 6 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

05702818 Supplier Number: 50153651 (USE FORMAT 7 FOR FULLTEXT)
Researchers envision pain-free drug delivery -- Plasma etch yields microneedle arrays
Quan, Margaret
Electronic Engineering Times, n1016, p63
July 13, 1998
Language: English Record Type: Fulltext
Article Type: Article
Document Type: Magazine/Journal; Trade
Word Count: 887

... 10 bays.
According to team member McAllister, the manufacturing process starts with bulk silicon 400 **microns** thick. Circular chromium dots (50 to 80 **microns** in diameter) are deposited and patterned on the wafers and the portion of the wafers...

...have been able to build solid-silicon microneedle arrays 10 mm2. Each needle is 150 **microns** tall, its diameter tapering from an 80- **micron** base to 1 **micron** at the tip, said McAllister. Needle-to-needle spacing is about 100 **microns** .
The microneedles' full length is not expected to penetrate the skin because the skin surface...

...skin, and that if the needles break, it involves only the first 5 to 10 **microns** (the tips) of the needles, said McAllister.
In addition, the researchers reported that the microneedle...

...subjects had no physical reactions to the needles.
Studies must still be done on the **microneedles** and the researchers expect further development will reduce the length and diameter of the **microneedles** ; make them **hollow** to increase the rate of drug delivery; and permit mass fabrication of arrays at least...

16/3,K/7 (Item 7 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management

01228385 I98072320300

A suspended microchannel with integrated temperature sensors for high-pressure flow studies

Wu, S; Mai, J; Zohar, Y; Tai, YC; Ho, CM
Dept. of Electr. Eng., California Inst. of Technol., Pasadena, CA, USA

Proceedings MEMS 98. IEEE. Eleventh Annual International Workshop on Micro Electro Mechanical Systems. An Investigation of Micro Structures, Sensors, Actuators, Machines and Systems (Cat. No.98CH36176), 25-29 Jan. 1998, Heidelberg, Germany1998
Document type: Conference paper Language: English
Record type: Abstract
ISBN: 0-7803-4412-X

ABSTRACT:
A freestanding **microchannel** , with integrated temperature sensors, has been developed for high-pressure flow studies. These **microchannels** are approximately 20 mu mx2 mu mx4400 mu m, and are suspended above 80 mu m deep **cavities** , bulk micromachined using BrF(ind 3) dry etch. The calibration of the lightly boron-doped...

...to temperature and linear with respect to pressure. Volumetric flow rates of NZ in the **microchannel** were measured at inlet pressures up to 578 psig. The discrepancy between the data and...
...DESCRIPTORS: ADJUST TO STANDARD; FLOW MEASUREMENT; MICROSENSORS; SEMICONDUCTOR TECHNOLOGY; TEMPERATURE MEASUREMENT; TEMPERATURE SENSORS; NTC RESISTOR; **MICRON** ; NITROGEN

16/3,K/12 (Item 12 from file: 88)

02944640 SUPPLIER NUMBER: 12783244

Nanochannel array glass.

Tonucci, R.J.; Justus, B.L.; Campillo, A.J.; Ford, C.E.

Science, v258, n5083, p783(3)
Oct 30, 1992
CODEN: SCIEAS ISSN: 0036-8075 LANGUAGE: English
RECORD TYPE: Fulltext; Abstract
WORD COUNT: 1897 LINE COUNT: 00170

... NCG material is inspired by a draw process not unlike the way optic fibers and **microchannel** plates are made [12, 13]. Recent attempts at drawing single glass fibers have succeeded in producing **hollow** [14] and metal-filled [15] cores as small as a few tenths of a **micrometer** . The smallest previously reported high-density glass fiber arrays made by a drawing process containing...NCG mask. The thickness of the mask must usually be kept greater than a few **micrometers** or a gold coating must be used to keep accelerated energetic ions from passing through...

21/8/1 (Item 1 from file: 442)
DIALOG(R)File 442:(c)2002 Amer Med Assn -FARS/DARS apply. All rts. reserv.

00045512
Copyright (C) 1989 American Medical Association

Growth Factors for Neuronal Survival and Process Regeneration; Implications in the Mammalian Central Nervous System (NEUROLOGICAL REVIEW) 1989;
LINE COUNT: 00384 WORD COUNT: 05312

21/8/2 (Item 1 from file: 103)
DIALOG(R)File 103:(c) 2002 Contains copyrighted material. All rts. reserv.

03935738 AIP-95-180257; EDB-96-019498
Title: Compact 170-W continuous-wave diode-pumped Nd:YAG rod laser with a cusp-shaped reflector
Publication Date: 1 Sep 1995
Major Descriptors: *NEODYMIUM LASERS -- DESIGN; *NEODYMIUM LASERS -- PERFORMANCE
Descriptors: EFFICIENCY; NEAR INFRARED RADIATION; POWER RANGE 100-1000 W
Broader Terms: ELECTROMAGNETIC RADIATION; INFRARED RADIATION; LASERS; POWER RANGE; RADIATIONS; SOLID STATE LASERS; WATT POWER RANGE
Subject Categories: 426002* -- Engineering -- Lasers & Masers -- (1990-)

21/8/3 (Item 2 from file: 103)
DIALOG(R)File 103:(c) 2002 Contains copyrighted material. All rts. reserv.

01213684 AIX-14-758704; EDB-83-113725
Title: Chopper-buncher system for the Rehovot Pelletron
Publication Date: 1 Jan 1983;
Major Descriptors: *ION BEAMS -- BEAM BUNCHERS
Descriptors: BEAM PULSERS; CORRECTIONS; FEEDBACK; HEAVY ION ACCELERATORS; MHZ RANGE 01-100; SUPERCONDUCTING CAVITY RESONATORS; TIME RESOLUTION
Broader Terms: ACCELERATORS; BEAMS; CAVITY RESONATORS; ELECTRONIC EQUIPMENT ; EQUIPMENT; FREQUENCY RANGE; MHZ RANGE; RESOLUTION; RESONATORS; SUPERCONDUCTING DEVICES; TIMING PROPERTIES
Subject Categories: 430200* -- Particle Accelerators -- Beam Dynamics, Field Calculations, & Ion Optics
INIS Subject Categories: E16* -- Accelerators & Storage Rings

21/8/4 (Item 1 from file: 484)
DIALOG(R)File 484:(c) 2002 ProQuest. All rts. reserv.

05173898 SUPPLIER NUMBER: 81574495 (USE FORMAT 7 OR 9 FOR FULLTEXT)
NVGs: Don't fly at night without them
Sep 2001

DESCRIPTORS: Night vision; Military aircraft; Pilots
CODEN: FLYSAZ
SPECIAL FEATURES: Photograph
COMPANY INFORMATION:
Air Force-US
?show files;ds;logoff hold
File 98:General Sci Abs/Full-Text 1984-2002/Sep
(c) 2002 The HW Wilson Co.
File 9:Business & Industry(R) Jul/1994-2002/Nov 07
(c) 2002 Resp. DB Svcs.
File 16:Gale Group PROMT(R) 1990-2002/Nov 08
(c) 2002 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989
(c) 1999 The Gale Group
File 148:Gale Group Trade & Industry DB 1976-2002/Nov 08
(c)2002 The Gale Group

File 621:Gale Group New[redacted]od.Annou.(R) 1985-2002/Nov 06
(c) 2002 The Gale Group
File 636:Gale Group Newsletter DB(TM) 1987-2002/Nov 08
(c) 2002 The Gale Group
File 95:TEME-Technology & Management 1989-2002/Oct W4
(c) 2002 FIZ TECHNIK
File 441:ESPICOM Pharm&Med DEVICE NEWS 2002/Oct W4
(c) 2002 ESPICOM Bus.Intell.
File 20:Dialog Global Reporter 1997-2002/Nov 08
(c) 2002 The Dialog Corp.
File 813:PR Newswire 1987-1999/Apr 30
(c) 1999 PR Newswire Association Inc
File 15:ABI/Inform(R) 1971-2002/Nov 07
(c) 2002 ProQuest Info&Learning
File 88:Gale Group Business A.R.T.S. 1976-2002/Nov 07
(c) 2002 The Gale Group
File 442:AMA Journals 1982-2002/Nov B2
(c)2002 Amer Med Assn -FARS/DARS apply
File 444:New England Journal of Med. 1985-2002/Nov W1
(c) 2002 Mass. Med. Soc.
File 149:TGG Health&Wellness DB(SM) 1976-2002/Oct W4
(c) 2002 The Gale Group
File 781:ProQuest Newsstand 1998-2002/Nov 08
(c) 2002 ProQuest Info&Learning
File 47:Gale Group Magazine DB(TM) 1959-2002/Nov 07
(c) 2002 The Gale group
File 141:Readers Guide 1983-2002/Sep
(c) 2002 The HW Wilson Co
File 103:Energy SciTec 1974-2002/Oct B2
(c) 2002 Contains copyrighted material
File 285:BioBusiness(R) 1985-1998/Aug W1
(c) 1998 BIOSIS
File 484:Periodical Abs Plustext 1986-2002/Nov W1
(c) 2002 ProQuest

Set	Items	Description
S1	247	MICRONEEDLE? ? OR (MICROMACHIN? OR MICROFABRICAT?)(5N)NEEDLE? ?
S2	5507	MICROCHANNEL? ?
S3	12	SUBSTRATE? ? (5N) PLANAR (S) PHOTORESIST? ?
S4	299085	HOLLOW OR CAVITY OR CAVITIES
S5	439677	MICROMETER? OR MICROMETRE? OR MICRON? ? OR UM OR UM2
S6	4606094	SIDES OR SIDE OR SIDED
S7	3	S1 AND S2
S8	0	S1 AND S3
S9	0	S2 AND S3
S10	26	S1 AND S4
S11	74	S1:S2(S)S4
S12	26	S5 AND S11
S13	14	RD (unique items)
S14	1	S13/2002
S15	13	S13 NOT S14
S16	13	Sort S15/ALL/PD,D
S17	48	S11 NOT S12
S18	3	S17/2002
S19	45	S17 NOT S18
S20	39	RD (unique items)
S21	4	S20 AND S6

L5 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:722897 HCAPLUS
DN 135:368752
TI A sampling mechanism employing the phase transition of a gel and its application to a micro analysis system imitating a mosquito

L5 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:635184 HCAPLUS
DN 136:200717
TI A sampling mechanism using a gel and its application to an intelligent mosquito

L5 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:556152 HCAPLUS
DOCUMENT NUMBER: 137:114590
TITLE: Transmembrane transport apparatus in drug delivery
INVENTOR(S): Unger, Evan C.; Wu, Yunqiu
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 19 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002099356	A1	20020725	US 2001-766284	20010119
WO 2002056939	A3	20020926	WO 2002-US1514	20020118

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: US 2001-766284 A 20010119
AB A drug delivery device and method comprises first creating ***channels*** or pores across a biol. membrane and secondly creating a driving force to propel drugs across or withdraw biol. fluids through the membrane.
IC ICM A61N001-30
ICS A61B017-20; A61M037-00; A61M031-00; A61B005-00; B65D081-00; A61B019-00
NCL 604501000
CC 63-8 (Pharmaceuticals)
Section cross-reference(s): 9
ST transmembrane transport app drug delivery
IT Artery
(angioplasty; transmembrane transport app. in drug delivery)
IT Medical goods
(catheters; transmembrane transport app. in drug delivery)
IT Gases
(compressed; transmembrane transport app. in drug delivery)

IT Pressure
(hydrostatic; transmembrane transport app. in drug delivery)
IT Needles (tools)
(***microneedles*** ; transmembrane transport app. in drug delivery)
IT Biochemical molecules
Body fluid
Drug delivery systems
Electricity
Electrolytes
Human
Membrane, biological
Piezoelectric materials
Piezoelectric transducers
Skin
Sound and Ultrasound
(transmembrane transport app. in drug delivery)
IT Antibodies
Growth factors, animal
Hormones, animal, biological studies
Interferons
Interleukins
Peptides, biological studies
Proteins
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(transmembrane transport app. in drug delivery)
IT 7440-09-7, Potassium, biological studies 7440-23-5, Sodium, biological studies 12408-02-5, Hydrogen ion, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biomols. contg.; transmembrane transport app. in drug delivery)
IT 437-38-7, Fentanyl 9004-10-8, Insulin, biological studies 62572-11-6, Hemoglobin A1c 180288-69-1, Herceptin
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(transmembrane transport app. in drug delivery)

L5 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2002:487854 HCAPLUS
DOCUMENT NUMBER: 137:54406
TITLE: *****Microneedle*** array systems**
INVENTOR(S): Ackley, Donald E.
PATENT ASSIGNEE(S): Biovalve Technologies, Inc., USA
SOURCE: PCT Int. Appl., 24 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002050584	A2	20020627	WO 2001-US49797	20011220

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,

CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2002031207 A5 20020701 AU 2002-31207 20011220

PRIORITY APPLN. INFO.: US 2000-257757P P 20001221
WO 2001-US49797 W 20011220

AB An optical device is described comprising a plurality of needles, preferably ***microneedles*** , having ***channels*** ; a plurality of fibers inserted in the plurality of needles; and a plurality of optical components aligned and connected with the plurality of fibers. Active components such as lasers are combined with optical fibers. ***microneedles*** are fabricated using techniques such as laser drilled Kapton, and combined with optical fiber, using bump bonding and UV curing adhesives to manuf. a variety of optical components. A method for forming an optical device including a vertical cavity surface emitting laser (VCSEL) array and a fiber array is also described entailing aligning the fiber array and VCSEL array; joining the fiber array and VCSEL array; reflowing solder on the VCSEL array; and applying underfill between the fiber array and VCSEL array.

IC ICM G02B006-00

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 76

ST ***microneedle*** array optical coupling vertical cavity surface emitting laser

IT Fiber optics
(fiber-optic instruments; ***microneedle*** array systems for optical coupling of vertical cavity surface emitting lasers)

IT Optical instruments
(fiber-optic; ***microneedle*** array systems for optical coupling of vertical cavity surface emitting lasers)

IT Optical couplers
Semiconductor lasers
(***microneedle*** array systems for optical coupling of vertical cavity surface emitting lasers)

IT Epoxides
RL: DEV (Device component use); USES (Uses)
(***microneedle*** array systems for optical coupling of vertical cavity surface emitting lasers)

L5 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:377998 HCAPLUS

TITLE: **Methods of fabricating ***microneedle*** arrays using sacrificial molds, and ***microneedle*** arrays fabricated thereby**

INVENTOR(S): Wood, Robert L.; Wynands, Henry A.; Markus, Karen W.

PATENT ASSIGNEE(S): Jds Uniphase Inc., Can.

SOURCE: PCT Int. Appl.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

WO 2001036036 A1 20010525 WO 2000-CA1210 20001018
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
PRIORITY APPLN. INFO.: US 1999-442827 A 19991118
AB ***Microneedle*** arrays are fabricated by providing a sacrificial mold including a substrate and an array of posts, preferably solid posts, projecting therefrom. A first material is coated on the sacrificial mold including on the substrate and on the array of posts. The sacrificial mold is removed to provide an array of hollow tubes projecting from a base. The inner and outer surfaces of the array of hollow tubes are coated with a second material to create the array of ***microneedles*** projecting from the base. A third material is molded into the ***channels*** and on the face of the master mold, to create the sacrificial mold. The sacrificial mold then is separated from the master mold. Alternatively, wire bonding may be used to wire bond an array of wires to a substrate to create the sacrificial mold.
IC ICM A61M037-00
REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:604147 HCAPLUS
DOCUMENT NUMBER: 134:105769
TITLE: **Hollow metallic ***micromachined*** ***needle*** **arrays**
AUTHOR(S): Brazzle, John D.; Papautsky, Ian; Frazier, A. Bruno
CORPORATE SOURCE: Department of Bioengineering, University of Utah, Salt Lake City, UT, 84112, USA
SOURCE: Biomedical Microdevices (2000), 2(3), 197-205
CODEN: BMICFC; ISSN: 1387-2176
PUBLISHER: Kluwer Academic Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
AB In this paper, fluid coupled metallic ***micromachined*** ***needle*** arrays are designed, fabricated, packaged, and characterized. The described hollow metallic needle arrays include design features such as dual structural supports and needle coupling ***channels*** . The supports and needle walls are formed by microelectroformed metal to provide increased structural integrity. The needle coupling ***channels*** are used to fluidically interconnect the needles and allow pressure equalization and balance of fluid flow between needles. In addn., the needle coupling ***channels*** minimize the effects of restricted needle passages by providing a redistribution point for fluid flow between them. The optimum design for the needle coupling ***channels*** is investigated using an ANSYS finite element numerical model. The significance of this work includes the development of hollow, metallic ***micromachined*** ***needle*** arrays for biomedical applications, as well as, a discussion of structural, fluidic, and biol. design considerations.
CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 56

ST hollow metal ***micromachining*** ***needle*** array; palladium hollow ***micromachining*** ***needle*** array

IT Micromachining
Needles (tools)
(prepn. and characterization of hollow metallic ***micromachined*** ***needle*** arrays)

IT 7440-05-3, Palladium, biological studies 7440-21-3, Silicon, biological studies 12033-89-5, Silicon nitride, biological studies 97396-58-2, AZ 4620
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(prepn. and characterization of hollow metallic ***micromachined*** ***needle*** arrays)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L5 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2002 ACS
ACCESSION NUMBER: 2000:241432 HCAPLUS
DOCUMENT NUMBER: 132:261370
TITLE: **A microinjector for injection of individual cells on a large scale manufactured by microfabrication**
INVENTOR(S): Garman, Andrew John; Scanlon, David John; Dodgson, John; Shaw, John Edward Andrew; Brennan, David; Corless, Anthony Robert; Turner, Christopher Matthew
PATENT ASSIGNEE(S): Zeneca Limited, UK
SOURCE: PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000020554	A1	20000413	WO 1999-GB3330	19991007
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9962161	A1	20000426	AU 1999-62161	19991007
EP 1124939	A1	20010822	EP 1999-949177	19991007
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002526103	T2	20020820	JP 2000-574653	19991007

PRIORITY APPLN. INFO.:
GB 1998-21833 A 19981008
GB 1999-18614 A 19990807
WO 1999-GB3330 W 19991007

AB The invention relates to a device for, and method of, injecting small articles, in particular cells. More particularly, but not exclusively, the invention relates to an automated device for and method of injection

of large nos. of cells. The invention also includes use of such a device, specifically in fields where low throughput of cell injection from current techniques has meant that such uses have not been viable. The injector uses microfluidic ***channels*** to guide individual cells onto ***microfabricated*** ***needles*** .

IC ICM C12M003-00
ICS C12N015-89

CC 3-1 (Biochemical Genetics)
Section cross-reference(s): 9

ST microinjector cell injection microfabrication

IT Fluid mechanics
(microfluidics; microinjector for injection of individual cells on large scale manufd. by microfabrication)

IT Micromachines
Micromachining
(microinjector for injection of individual cells on large scale manufd. by microfabrication)

IT Injectors
(microinjectors; microinjector for injection of individual cells on large scale manufd. by microfabrication)

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d his; log hold

(FILE 'HOME' ENTERED AT 10:30:02 ON 08 NOV 2002)

FILE 'HCAPLUS' ENTERED AT 10:30:14 ON 08 NOV 2002

L1 657 S MICRONEEDLE? OR (MICROMACHIN? OR MICROFABRICAT?) (5N) NEEDLE?
L2 1097 S (HOLLOW OR CAVITY OR CAVITIES) (5A) (MICROCHANNEL? OR CHANNEL
L3 0 S L1 AND L2
L4 269266 S MICROCHANNEL? OR CHANNEL?
L5 7 S L1 AND L4

17/7/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014310076 **Image available**
WPI Acc No: 2002-130779/200217
Microfluidic device comprises body structure with venting channel(s) that may be disposed surrounding a fluid-containing channel
Patent Assignee: CALIPER TECHNOLOGIES CORP (CALI-N); BOUSSE L J (BOUS-I); BROOKS C (BROO-I); CHAZAN D (CHAZ-I); LOUCH D (LOUC-I); SPAID M R (SPAI-I)
Inventor: BOUSSE L J; BROOKS C; CHAZAN D; LOUCH D; SPAID M R
Number of Countries: 095 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200197974	A1	20011227	WO 2001US19595	A	20010618	200217 B
US 20020025280	A1	20020228	US 2000212701	P	20000619	200220
			US 2001884429	A	20010618	
AU 200169929	A	20020102	AU 200169929	A	20010618	200230

Priority Applications (No Type Date): US 2000212701 P 20000619; US 2001884429 A 20010618
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200197974	A1	E	48	B01L-003/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

US 20020025280 A1		B01L-003/02	Provisional application US 2000212701
AU 200169929 A		B01L-003/00	Based on patent WO 200197974

Abstract (Basic): WO 200197974 A1
NOVELTY - A microfluidic device comprises body structure with venting channel(s) (206, 208) which may be disposed surrounding a fluid-containing channel (202).
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for a method of fabricating a body structure.
USE - As microfluidic devices, e.g. integrated circuits, microprocessors, or microfluidic components.
ADVANTAGE - The invention minimizes the effects of bond voids.
DESCRIPTION OF DRAWING(S) - The figure shows a magnified view of a portion of the microfluidic device body structure.
Fluid-containing channel (202)
Port (204)
Venting channel (206, 208)
pp; 48 DwgNo 1/8
Derwent Class: B04; J04; S03
International Patent Class (Main): B01L-003/00; B01L-003/02
International Patent Class (Additional): G01N-027/26

17/7/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013606949
WPI Acc No: 2001-091157/200110
Microporation devices for creating micropores in biological membranes for the delivery of agents or extraction of biological fluids which can be used for the assay of analytes
Patent Assignee: ALTEA TECHNOLOGIES INC (ALTE-N)
Inventor: EPPSTEIN J; HATCH M R; PAPP J
Number of Countries: 094 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200074767	A2	20001214	WO 2000US15979	A	20000608	200110	B
AU 200054799	A	20001228	AU 200054799	A	20000608	200119	
EP 1189660	A2	20020327	EP 2000939765	A	20000608	200229	
			WO 2000US15979	A	20000608		

Priority Applications (No Type Date): US 99138050 P 19990608

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200074767	A2	E	96	A61M-037/00	
AU 200054799	A			A61M-037/00	Based on patent WO 200074767
EP 1189660	A2	E		A61M-037/00	Based on patent WO 200074767

WO 200074767 A2 Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

WO 200074767 A2 Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW

EP 1189660 A2 Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

Abstract (Basic): WO 200074767 A2

NOVELTY - New microporation devices for creating micropores in biological membranes for the delivery of agents or extraction of biological fluids which can be used for the assay of analytes.

DETAILED DESCRIPTION - New microporation devices for creating micropores in biological membranes for the delivery of agents or extraction of biological fluids which can be used for the assay of analytes.

The device comprises at least 1 reservoir and a tissue interface comprising at least 1 microporator and a substrate, where the microporator is located on or within the substrate.

INDEPENDENT CLAIMS are also included for the following:

(1) a method of manufacturing a microporation device comprising obtaining a substrate, and forming a conductive network on the substrate, where the conductive network provides electrical connections to a microporator;

(2) a method for forming openings in a biological membrane comprising:

(a) placing a microporation device in close proximity to the biological membrane; and

(b) triggering the microporation device to form at least one opening in the biological membrane, the microporation device comprising at least one reservoir, and a tissue interface comprising at least one microporator and a substrate, where the microporator is located on or within the substrate;

(3) a method for administering a compound through a biological membrane to an underlying tissue matrix, comprising:

(a) contacting a flux enhancement cell with a biological membrane, where the biological membrane has an inner surface in intimate contact with the tissue matrix and an outer surface, a resting state, a pressurized state in which the outer surface of the membrane is depressed to a concave form relative to the resting state and the underlying tissue matrix is compressed, and relieved state, where the outer surface of the membrane is biased into a convex shape and the underlying tissue matrix is subjected to reduced pressure and where the flux enhancement cell comprises an outer wall, the outer wall defining a cell **cavity** , and a movably contained reservoir, the reservoir comprising an inner **cavity** and an outlet, the inner **cavity** containing a permeant;

(b) forming a seal between the outer wall and the membrane, where the reservoir outlet is in communication with an artificial pore in the membrane;

(c) applying positive pressure to the inner **cavity** of the reservoir;

(d) biasing the reservoir towards the membrane, thus producing the

compressed state of e membrane; ande) biasing the ervoir away from the membrane, thus producing the relived state;

(4) a method for administering a compound through a biological membrane to an underlying tissue matrix comprising:

(a) step (a) as in (3);

(b) forming a seal between the outer wall and the membrane;

(c) forming an artificial pore in the membrane, where the reservoir outlet is in communication with the artificial pore;

(d) applying a positive pressure to the inner **cavity** of the reservoir;

(e) biasing the reservoir towards the membrane, thus producing the compressed state of the membrane; and

(f) biasing the reservoir away from the membrane, thus producing the relieved state;

(5) a method for obtaining a biological fluid sample from a tissue matrix underlying a biological membrane comprising:

(a) step (a) as in (3);

(b) forming a seal between the outer wall and the membrane, where the reservoir outlet is in communication with an artificial pore in the membrane;

(c) applying reduced pressure to the inner **cavity** of the reservoir;

(d) biasing the reservoir towards the membrane, thus producing the compressed state of the membrane; and

(e) biasing the reservoir away from the membrane, thus producing the relived state;

(6) a method for obtaining a biological fluid sample from a tissue matrix underlying a biological membrane, comprising:

(a) step (a) as in (3b) forming a seal between the outer wall and the membrane;

(c) forming an artificial pore in the membrane, where the reservoir outlet is in communication with the artificial pore;

(d) applying positive pressure to the inner **cavity** of the reservoir;

(e) biasing the reservoir towards the membrane, thus producing the compressed state of the membrane; and

(f) biasing the reservoir away from the membrane, thus producing the relived state;

(7) a flux enhancement device comprising:

(a) an outer wall defining a cell **cavity** ; and

(b) a reservoir comprising an inner **cavity** and an outlet; where the reservoir is movably contained within the cell **cavity** ; and

(8) a microporation device comprising:

(a) at least one reservoir; and

(b) a tissue interface comprising at least one microporator and a substrate, where the microporator is selected from a probe element capable of conductively delivering thermal energy via direct contact to a biological membrane to cause the ablation of some portion of the membrane deep enough to form a micropore, an electro-mechanical actuator, a microlancet, an array of **microneedles** or lancets, a sonic energy ablator, a laser ablation system, or a high pressure fluid jet puncturer, where the microporator is located on or within the substrate.

USE - The devices can be used for the creation of small holes or perforations or micropores in biological membranes, such as the outer layers of the skin or the mucosal linings, the delivery of drugs or other permeants through the micropores, or the extraction of biological fluids through the micropores for the assay of analytes in the extracted biological fluids and the increase of flux through the micropores.

ADVANTAGEThe devices facilitate a rapid and painless method of eliminating the barrier function of the stratum croneum to facilitate the transcutaneous transport of therapeutic substances into the body when applied topically or to access the analytes within the body for analysis.

pp; 96 DwgNo 0/27

Derwent Class: B04; B07; P31; P34

International Patent Class (Main): A61M-037/00
International Patent Class (Additional): A61B-010/00; A61K-041/00;
A61N-001/32

22/26,TI/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

014754590
WPI Acc No: 2002-575294/200261
Microneedle **adapter for transport of fluid e.g. insulin or growth hormone, includes** microneedle **device mounted to housing, and in fluid communication with fluid pathway**

22/26,TI/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

014584534
WPI Acc No: 2002-405238/200243
Assay implantation apparatus useful for detection of an analyte in subcutaneous fluid comprises sensor and a device for implanting the sensor within the upper layer of the skin

22/26,TI/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

014351059
WPI Acc No: 2002-171762/200222
Manufacture of microdevice for delivering or withdrawing substance through patient's skin, by positioning skin penetrating device in recessed area of support, and applying bonding agent to wick between base and support

22/26,TI/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

013852709
WPI Acc No: 2001-336922/200136
Mold assembly for the manufacture of molded devices e.g., microabrader, includes silicon mold member disposed in mold cavity

22/26,TI/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

013799458
WPI Acc No: 2001-283670/200130
Microabrader device for abrading stratum corneum of the skin, includes support having bottom face, and microneedles

22/26,TI/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.

013577457
WPI Acc No: 2001-061664/200107
Micro-needle structure for drug injection in human body, has opening extending from upper to lower ends of cylindrical needle, and pair of blades with sharp edges projecting from outer surface of needle

22/26,TI/7 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013548020
WPI Acc No: 2001-032226/200104
Manufacture of microneedle array, for use in the medical field, comprises placing a planar material in a mold comprising one or two portions containing micropillars and microholes, heating it until it deforms and then allowing it to cool

22/26,TI/8 (Item 8 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013342946
WPI Acc No: 2000-514885/200046
Manufacture of a dermal conditioning or sampling device, useful for the transdermal delivery of active agents, comprises mixing and heating polymer in a multiple lobed compounder, avoiding prolonged exposure to heating and solvent

22/26,TI/9 (Item 9 from file: 350)
DIALOG(R)File 350:Derwent WPIX

012999235
WPI Acc No: 2000-171087/200015
In vivo introduction of a therapeutic agent into skin or muscle cells of a subject using a pulsed electric field

22/26,TI/10 (Item 10 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010045101
WPI Acc No: 1994-312812/199439
Micro-injection into fertilised animal egg - of soln. contg. protein(s), DNA and/or RNA, to create transgenic animals

22/26,TI/11 (Item 11 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009657763
WPI Acc No: 1993-351315/199344
Micro-vascular injection assembly partic. for ophthalmic use - tapered bore tube connects standard syringe needle to micro-needle
?t22/7/3,4,6,7,8

22/7/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014351059 **Image available**
WPI Acc No: 2002-171762/200222
Manufacture of microdevice for delivering or withdrawing substance through patient's skin, by positioning skin penetrating device in recessed area of support, and applying bonding agent to wick between base and support
Patent Assignee: BECTON DICKINSON & CO (BECT); EVANS J D (EVAN-I); LASTOVICH A G (LAST-I); PETTIS R J (PETT-I)
Inventor: EVANS J D; LASTOVICH A G; PETTIS R J
Number of Countries: 096 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200205890	A2	20020124	WO 2001US21791	A	20010711	200222	B
AU 200173340	A	20020130	AU 200173340	A	20010711	200236	
US 6440096	B1	20020827	US 2000616771	A	20000714	200259	

Priority Applications (No Type Date): US 2000616771 A 20000714
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200205890	A2	E	29	A61M-037/00	
AU 200173340	A			A61M-037/00	Based on patent WO 200205890
US 6440096	B1			A61N-001/30	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

Abstract (Basic): WO 200205890 A2

NOVELTY - A microdevice is manufactured by providing a support having a bottom face with a recessed area, positioning a skin penetrating device in the recessed area of the support, and applying a bonding agent between the support and the base in the recessed area. The penetrating device has a base and skin penetrating member(s). The bonding agent has a viscosity to wick between the base and support.

DETAILED DESCRIPTION - Manufacture of a microdevice comprises providing a support (12) having a bottom face with a recessed area having a dimension less than a dimension of a bottom face and positioning a skin penetrating device in the recessed area of the support. The skin penetrating device has a base and skin penetrating member(s). The base has a dimension less than the dimension of the recessed area. A bonding agent is applied to location between the support and the base in the recessed area. It has a viscosity to wick between the base and the support.

An INDEPENDENT CLAIM is also included for a device for delivering or withdrawing a substance, e.g. pharmaceutical agents or drugs from a patient comprising support member, skin penetrating device, and bonding material.

USE - The method is used for manufacturing microdevice for delivering or withdrawing a substance, e.g. pharmaceutical agents or drugs through the skin of a patient. The device introduces a vaccine intradermally for delivering vaccine antigen for presentation to the langerhans cells.

ADVANTAGE - The device is a disposable, single-use device. It can be used safely and effectively. It provides no pain to the patient when the device is penetrated to the skin.

DESCRIPTION OF DRAWING(S) - The figure is a perspective view of the sampling or delivery device.

Support (12)
Opening (28)
Flange (30)
pp; 29 DwgNo 1/12

Derwent Class: B07; P34
International Patent Class (Main): A61M-037/00; A61N-001/30

22/7/4 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX

013852709 **Image available**
WPI Acc No: 2001-336922/200136

Mold assembly for the manufacture of molded devices e.g., microabrader, includes silicon mold member disposed in mold cavity

Patent Assignee: BECTON DICKINSON & CO (BECT)
Inventor: MONAHAN L A; POWELL K G; SAGE B H
Number of Countries: 029 Number of Patents: 006

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 1088642	A1	20010404	EP 2000118933	A	20000901	200136	B
AU 200056508	A	20010405	AU 200056508	A	20000905	200136	
CA 2318011	A1	20010329	CA 2318011	A	20000912	200136	
JP 2001158031	A	20010612	JP 2000297805	A	20000929	200139	
US 6331266	B1	20011218	US 99408450	A	19990929	200205	
US 20020053756	A1	20020509	US 99408450	A	19990929	200235	
			US 2001974829	A	20011012		

Priority Applications (No Type Date): US 99408450 A 19990929; US 2001974829 A 20011012

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 1088642	A1	E	15	B29C-045/37	
Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
AU 200056508	A			B29C-033/38	
CA 2318011	A1	E		B29C-045/26	
JP 2001158031	A		38	B29C-045/26	
US 6331266	B1			B29C-033/42	
US 20020053756	A1			B29C-033/38	Div ex application US 99408450

Abstract (Basic): EP 1088642 A1

NOVELTY - A mold assembly comprises a mold section (50) with a recess (66) defining a mold **cavity** for receiving a molding material to form a molded device. A silicon mold member (68) is disposed in the mold **cavity** , with its mold surface (76) facing the mold **cavity** . The mold surface has a contoured surface defining an impression for molding the device.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for (A) a method of making a molded device comprising introducing a plastic material into the mold **cavity** to fill the **cavity** and the contoured surface of the silicon mold member, and then removing the molded device from the mold section; and (B) a molded device made by the above method.

USE - The invention is used for the manufacture of molded devices, particularly micro-device e.g., microabrader. This microabrader can be used for abrading stratum corneum of the skin to form an abraded site in the tissue for enhancing drug delivery (disclosed).

ADVANTAGE - The inventive mold assembly has silicon molding surface which enables **micron** and submicron size features to be molded from polymeric material without adhering the polymeric material to the mold surface. It allows micro-devices having **micron** or submicron molded features to be rapidly produced without the use of a releasing agent.

DESCRIPTION OF DRAWING(S) - The figure shows an exploded perspective view of mold and silicon mold member for molding a **microneedle** of the microabrader.

Mold section (50)
Recesses (66, 78)
Silicon mold member (68)
Mold surface (76)
pp; 15 DwgNo 5/6

Derwent Class: A32; A96

International Patent Class (Main): B29C-033/38; B29C-033/42; B29C-045/26; B29C-045/37

International Patent Class (Additional): B29C-033/44; B29C-033/56; B29C-039/02; B29C-039/26; B29C-041/02; B29C-041/38; B29C-041/40; B29C-043/02; B29C-043/10; B29C-043/36; B29C-059/00; B29D-031/00; B29L-031-00

22/7/6 (Item 6 from file: 350)

013577457 **Image available**

WPI Acc No: 2001-061664/200107

Micro-needle structure for drug injection in human body, has opening extending from upper to lower ends of cylindrical needle, and pair of blades with sharp edges projecting from outer surface of needle

Patent Assignee: PROCTER & GAMBLE CO (PROC)

Inventor: ARIAS F; GARSTEIN V; NEBRIGIC D D; OWENS G D; SHERMAN F F; YUZHAKOV V V; GARTSTEIN V

Number of Countries: 093 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200074766	A1	20001214	WO 2000US15614	A	20000607	200107	B
AU 200057281	A	20001228	AU 200057281	A	20000607	200119	
TW 425294	A	20010311	TW 2000111330	A	20000609	200143	
EP 1183066	A1	20020306	EP 2000942693	A	20000607	200224	
			WO 2000US15614	A	20000607		
US 6379324	B1	20020430	US 99328947	A	19990609	200235	

Priority Applications (No Type Date): US 99328947 A 19990609

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200074766	A1	E	109	A61M-037/00	
Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW					
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW					
AU 200057281	A			A61M-037/00	Based on patent WO 200074766
TW 425294	A			A61M-005/32	
EP 1183066	A1	E		A61M-037/00	Based on patent WO 200074766
Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
US 6379324	B1			A61B-017/20	

Abstract (Basic): WO 200074766 A1

NOVELTY - Cylindrical needle (800) has an opening (806) extending from the upper end to lower end of the needle. The lower end contacts with a base element (805). A pair of blades (820, 830) with sharp edges, projects opposing to each other at the outer surface of the needle along the length of needle. The cross-section of the blade is an isosceles triangular shape.

USE - Used for drug injection or interstitial fluids or blood extraction in the human body.

ADVANTAGE - The array of micro needles having opening and sharp edged blades ensures painless drug injection with minimal trauma to skin. The drug is delivered at high rate by continuous dosing.

DESCRIPTION OF DRAWING(S) - The figure shows the perspective view of the micro needle structure.

Cylindrical needle (800)

Base element (805)

Opening (806)

Blades (820, 830)

pp; 109 DwgNo 32/57

Derwent Class: B07; P31; P34

International Patent Class (Main): A61B-017/20; A61M-005/32; A61M-037/00

22/7/7 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

013548020 **Image available**

WPI Acc No: 2001-032226/200104

Manufacture of microneedle array, for use in the medical field, comprises placing a planar material in a mold comprising one or two portions containing micropillars and microholes, heating it until it deforms and then allowing it to cool

Patent Assignee: PROCTER & GAMBLE CO (PROC)
Inventor: GARTSTEIN V; OWENS G D; SHERMAN F F; YUZHAKOV V V
Number of Countries: 092 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200074764	A1	20001214	WO 2000US15612	A	20000607	200104	B
AU 200057279	A	20001228	AU 200057279	A	20000607	200119	
US 6312612	B1	20011106	US 99328946	A	19990609	200170	
US 20020020688	A1	20020221	US 99328946	A	19990609	200221	
			US 2001956520	A	20010919		
EP 1183064	A1	20020306	EP 2000942691	A	20000607	200224	
			WO 2000US15612	A	20000607		

Priority Applications (No Type Date): US 99328946 A 19990609; US 2001956520 A 20010919
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200074764	A1	E	107	A61M-037/00	
Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW					
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW					
AU 200057279	A			A61M-037/00	Based on patent WO 200074764
US 6312612	B1			B81C-001/00	
US 20020020688	A1			C23F-001/00	Div ex application US 99328946 Div ex patent US 6312612
EP 1183064	A1	E		A61M-037/00	Based on patent WO 200074764
Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					

Abstract (Basic): WO 200074764 A1

NOVELTY - Manufacturing a **microneedle** array comprises:

(1) providing a bottom mold with vertical micropillars having top surfaces of equal height;

(2) placing a material on top of the micropillars;

(3) heating the material to just above its melting temperature;

(4) allowing the material to deform;

(5) cooling the material;

(6) detaching the material from the bottom mold, thus leaving an array of **hollow microneedles** .

DETAILED DESCRIPTION - Manufacturing a **microneedle** array comprises:

(1) providing a bottom mold with a horizontal base surface and vertical micropillars (122, 124) with top surfaces of equal height;

(2) placing a planar material on the top surfaces of the micropillars;

(3) heating the material to just above its melting temperature (MT) while keeping the temperature of the micropillars at a temperature just below MT;

(4) allowing the material to begin to deform due to a temperature gradient within the planar material and due to a gravitational or centrifugal force;

(5) continuing to allow the material to deform until a portion of the deformed material touches the horizontal base surface (by which time all the material at the top of the micropillars has melted away);

(6) cooling the mold and the material to a temperature below MT;

(7) detaching the material from the bottom mold structure, thus leaving an array of **hollow microneedles** .

INDEPENDENT claims are included for:

(1) Preparation of a **microneedle** array comprising:

(a) providing a top mold with a planar bottom surface and a bottom mold with a planar top surface, both of which have microholes and micropillars of equal length located within the microholes. The micropillars extend beyond the bottom surface, preventing it from contacting the top surface when the two molds are closed, thus creating

a gap between the two molds;

(b) heating a moldable material to above its melting temp in a separate container;

(c) injecting the moldable material into the mold when the two halves are closed;

(d) cooling the mold and material to a temperature below the melting temperature of the material and detaching the material from it, thus leaving an array of **hollow microneedles** .

(2) Preparation of a **microneedle** array comprising:providing a semiconductor;

(a) providing a semiconductor wafer;

(b) creating annular oxide patterns on the top surface of the wafer;

(c) forming indentations on the bottom surface of the wafer;

(d) forming, by etching away material, needle-like protection in the top surface of the wafer which are aligned with the indentations; and

(e) forming through holes in the needle-like projections thus creating an array of **hollow microneedles** .

(3) Preparation of a mold for manufacturing of a **microneedle** comprises:

(a) providing a photoresist material in contact with a temporary substrate;

(b) placing a mask with a predetermined pattern on the photoresist material (at least a portion of the mask comprises a material that prevents high energy radiation from passing through it);

(c) exposing the combination photoresist material/mask layer to a high energy radiation;

(d) removing the mask layer and chemically developing exposed portions of the photo-resist material, thus removing portions of the photoresist material and leaving behind a pattern that represents a three dimensional structure emulating the **microneedles** to be formed later;

(e) electroplating the patterned photoresist material with a metallic substance; and

(f) detaching the metallic substance from the patterned photoresist material so that the metallic substance forms a **microneedle** array mold.

USE - The **microneedle** array is used as a fluid sampling device in the medical field or for dispensing fluid into blood.

ADVANTAGE - Sharp **hollow microneedles** are obtained which allow intracutaneous drug delivery and the sampling of biological fluids to be performed. The **microneedle** array has sensing capabilities using optical, spectroscopic, colorimetric, electrochemical, thermal, gravimetric and light scattering devices. The molds are detachable and can be re-used, this method is therefore less expensive than microfabrication techniques. This method is also quicker and more accurate than microfabrication techniques. The **microneedle** array is in the from of a patch which can perform intracutaneous drug delivery, biological fluid testing and sampling e.g. of interstitial fluids or blood. The **microneedle** array can be use as part of a closed loop system to control drug delivery, based on feedback information, that analyses body fluids. Such a system can achieve real time continuous dosing and monitoring of body activity.

DESCRIPTION OF DRAWING(S) - The figure shows the sectional view explaining the **microneedle** array manufacture.

Planar material (130)

Micropillars (122,124)

pp; 107 DwgNo 9/57

Derwent Class: A32; A96; B07; P34; Q68; S05

International Patent Class (Main): A61M-037/00; B81C-001/00; C23F-001/00

International Patent Class (Additional): B29C-033/42; B29C-069/00

22/7/8 (Item 8 from file: 350)

013342946
WPI Acc No: 2000-514885/200046

Manufacture of a dermal conditioning or sampling device, useful for the transdermal delivery of active agents, comprises mixing and heating polymer in a multiple lobed compounder, avoiding prolonged exposure to heating and solvent

Patent Assignee: ORTHO-MCNEIL PHARM INC (ORTH)
Inventor: AUDETT J D; DETROYER G D
Number of Countries: 083 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200045798	A1	20000810	WO 2000US2594	A	20000201	200046	B
AU 200029784	A	20000825	AU 200029784	A	20000201	200059	

Priority Applications (No Type Date): US 99241662 A 19990202
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200045798	A1	E	33	A61K-009/70	

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH GM HR HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

AU 200029784	A			A61K-009/70	Based on patent WO 200045798

Abstract (Basic): WO 200045798 A1

NOVELTY - Manufacture of a dermal conditioning or sampling device comprises:

(a) mixing and heating a polymer in a multiple lobed compounder to produce a polymer mixture;

(b) extruding the polymer mixture; and

(c) incorporating at least a portion of the resulting extruded polymer mixture into a dermal conditioning or sampling device.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is provided for the dermal conditioning or sampling device.

USE - The device is used to deliver active agents transdermally.

ADVANTAGE - The use of single screw extrusion process to produce the transdermal device does not expose the active agent to extremes of temperature or solvent for extended periods of time.

pp; 33 DwgNo 0/0

Derwent Class: A23; A96; B07; C07; D22
International Patent Class (Main): A61K-009/70
?show files;ds;b348,349
File 350:Derwent WPIX 1963-2002/UD,UM &UP=200271
(c) 2002 Thomson Derwent
File 344:Chinese Patents Abs Aug 1985-2002/Oct
(c) 2002 European Patent Office
File 347:JAPIO Oct 1976-2002/Jun(Updated 021004)
(c) 2002 JPO & JAPIO
File 371:French Patents 1961-2002/BOPI 200209
(c) 2002 INPI. All rts. reserv.

Set	Items	Description
S1	88	MICRONEEDLE? ? OR (MICROMACHIN? OR MICROFABRICAT?)(5N)NEEDLE? ?
S2	1202	MICROCHANNEL? ?
S3	50	SUBSTRATE? ? (5N) PLANAR (S) PHOTORESIST? ?
S4	555280	HOLLOW OR CAVITY OR CAVITIES
S5	187603	MICROMETER? OR MICROMETRE? OR MICRON? ? OR UM OR UM2
S6	2839221	SIDES OR SIDE OR SIDED
S7	457	IC='C25D-001/02'
S8	3549	IC='C25D-005/02'
S9	1	S1:S2 AND S7:S8 (a duplicate)
S10	0	S1:S2 AND S3
S11	98	S1:S2 AND S4

S12	88	S1
S13	107378	2 AND S5
S14	222	S1:S2 AND S6
S15	91	S1:S2 AND S5
S16	2	S11 AND S14 AND S15
S17	2	S16 NOT S9
S18	52	S1:S2 AND ((S4 AND S5) OR (S5 AND S6) OR (S4 AND S6))
S19	67931	IC='C25D'
S20	1	S18 AND S19 (a duplicate)
S21	12	S18 AND S1
S22	11	S21 NOT (S9 OR S17 OR S20)

11/3,AB/1 (Item 1 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00860677
ACTIVE NEEDLE DEVICES WITH INTEGRATED FUNCTIONALITY (a duplicate)
DISPOSITIFS A AIGUILLES ACTIVES AVEC FONCTIONNALITE INTEGREE
Patent Applicant/Assignee:
THE UNIVERSITY OF UTAH RESEARCH FOUNDATION, Suite 110, 615 Arapeen Drive, Salt Lake City, UT 84108, US, US (Residence), US (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
FRAZIER A Bruno, 681 Vinings Estates Drive, Mableton, GA 30126, US, US (Residence), US (Nationality), (Designated only for: US)
ANDRADE Joseph D, 949 Millcreek Way, Salt Lake City, UT 84106, US, US (Residence), US (Nationality), (Designated only for: US)
BARTHOLOMEUSZ Daniel A, 4716 South 700 East, #33, Murray, UT 84107, US, US (Residence), US (Nationality), (Designated only for: US)
BRAZZLE John D, 40 Wellesley Drive, Milford, NH 03055, US, US (Residence), US (Nationality), (Designated only for: US)
Legal Representative:
SEELEY David O (et al) (agent), Workman, Nydegger & Seeley, 1000 Eagle Gate Tower, 60 East South Temple, Salt Lake City, Utah 84101, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200193930 A1 20011213 (WO 0193930)
Application: WO 2001US17838 20010601 (PCT/WO US0117838)
Priority Application: US 2000208868 20000602
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 12807

English Abstract
An active needle device (10) for fluid injection or extraction includes at least one hollow elongated shaft (11) defining at least one channel (12). The channel (12) provides communication between at least one input port (15) and at least one output port (16) of the needle device (10). At least one active component (17) such as a sensor or actuator is placed or integrated into the elongated shaft (11). The needle device (10) can include a macroneedle, a **microneedle** (21), or an array of macroneedles or **microneedles** (25a). The **microneedles** (21) can be fabricated on a substrate (26) which can remain attached to the **microneedles** (21) or be subsequently removed. The active component can facilitate biochemical, optical, electrical, or physical measurements of a fluid injected or extracted by the needle device (10).

French Abstract
L'invention concerne un dispositif a aiguille active (10) destine a injecter ou extraire un fluide et comprenant au moins une tige allongee creuse (11) definissant au moins un canal (12). Ce canal (12) assure une communication entre au moins un orifice d'entree (15) et au moins un orifice de sortie (16) de ce dispositif a aiguille (10). Au moins un composant actif (17) tel qu'un capteur ou un actionneur est place ou integre dans la tige allongee (11). Ce dispositif a aiguille (10) peut comprendre une macroaiguille, une microaiguille (21) ou un ensemble de macroaiguilles ou de microaiguilles (25a). Les microaiguilles (21) peuvent etre fabriquees sur un substrat (26), lequel peut rester fixe aux microaiguilles (21) ou en etre subsequemment detache. Le composant actif peut faciliter les mesures biochimiques, optiques, electriques ou physiques d'un fluide injecte ou extrait au moyen de ce dispositif a

aiguille.

11/3,AB/2 (Item 2 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00553460
SURFACE MICROMACHINED MICRONEEDLES
MICRO-AIGUILLES MICRO-USINEES SUR UNE SURFACE (a duplicate)
Patent Applicant/Assignee:
THE UNIVERSITY OF UTAH RESEARCH FOUNDATION,
FRAZIER A Bruno,
BRAZZLE John D,
Inventor(s):
FRAZIER A Bruno,
BRAZZLE John D,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200016833 A1 20000330 (WO 0016833)
Application: WO 99US21509 19990917 (PCT/WO US9921509)
Priority Application: US 98101064 19980918
Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZW GH GM KE LS MW SD SL SZ TZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 8841

English Abstract
Surface micro-machined micro-needles (32) are formed as single needles (32) or in two-dimensional or three-dimensional micro-needle arrays (30). The micro-needles (32) are fabricated on a substrate (12) which can remain attached to the micro-needles (32) or can be subsequently removed. The two-dimensional or three-dimensional micro-needle arrays (30) can have cross-coupling flow channels (36) which allow for pressure equalization, and balance of fluid flow within the micro-needle arrays (30). Each of the micro-needles (32) has a micro-channel (36) therethrough that provides communication between at least one input port (37) at a proximal end of the micro-needles (32), and at least one output port (39) at an opposite distal end.

13/6/1 (Item 1 from file: 349)
00915834 **Image available**
ANALYTE MEASUREMENT
MESURE D'ANALYTE
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 19003
Publication Year: 2002

13/6/2 (Item 2 from file: 349)
00913363 **Image available**
MICRONEEDLE **ADAPTER**
ADAPTATEUR POUR MICRO-AIGUILLES
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 3674
Publication Year: 2002

13/6/3 (Item 3 from file: 349)
00837108 **Image available**
MULTIBLOCK MICRO-ARRAYS OR MACRO-ARRAYS WITH LAB-ON-A-CHIP
MICRO-ARRAYS OU MACRO-ARRAYS MULTIBLOCS AVEC LABORATOIRES SUR PUCES INTEGRES
Publication Language: French
Filing Language: French
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 30455
Publication Year: 2001
?t13/3,ab/3

13/3,AB/3 (Item 3 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00837108
MULTIBLOCK MICRO-ARRAYS OR MACRO-ARRAYS WITH LAB-ON-A-CHIP
MICRO-ARRAYS OU MACRO-ARRAYS MULTIBLOCS AVEC LABORATOIRES SUR PUCES INTEGRES
Patent Applicant/Inventor:
GELI Francois, 119, boulevard Yves Farge, F-69007 Lyon, FR, FR (Residence), FR (Nationality)
Patent and Priority Information (Country, Number, Date):
Patent: WO 200170400 A1 20010927 (WO 0170400)
Application: WO 2001FR881 20010322 (PCT/WO FR0100881)
Priority Application: FR 20003680 20000322
Designated States: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: French
Filing Language: French
Fulltext Word Count: 30455

English Abstract

The invention concerns multiblock micro-arrays or macro-arrays incorporating laboratories on chips, for use in chemical, biochemical or biological analysis or chemical or biochemical synthesis. An inventive multiblock micro-array or macro-array consists of a stack of flat elementary modules provided with parallel **microchannels** at their surface which emerge into the thickness and on the edge of their sides, each flat elementary module providing a line to said multiblock micro-array or macro-array. The **microchannels** can be provided with micro-mixers and enlarged portions, provided with molecule-fixing surface and can receive micro-columns or micro-particles or micro-spheres. The juxtaposition of the lines first set of reagents enables to perform the parallel reactions on very small volumes. Two inventive multiblock micro-arrays or macro-arrays can be orthogonally connected to cross a first set of reagents a with a second, and form a sealed chain of analysis or synthesis.

15/6/1 (Item 1 from file: 348)
01261727
Method and apparatus for manufacturing a device
Verfahren und Vorrichtung zur Herstellung eines Gerats
Procede et dispositif pour fabriquer un appareil
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200114	357
SPEC A	(English)	200114	4114
Total word count - document A			4471
Total word count - document B			0
Total word count - documents A + B			4471

15/6/2 (Item 1 from file: 349)
00939079 **Image available**
DIRECTIONAL ACCELARATION VECTOR-DRIVEN DISPLACEMENT OF FLUIDS (DAVD-DOF)
DEPLACEMENT ENTRAINE PAR UN VECTEUR D'ACCELERATION DIRECTIONNEL DE FLUIDES (DAVD-DOF)
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 7398
Publication Year: 2002

15/6/3 (Item 2 from file: 349)
00914606 **Image available**
NANOSENSORS
NANOCAPTEURS
Publication Language: English
Filing Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 15915
Publication Year: 2002

15/6/4 (Item 3 from file: 349)
00557181 **Image available**
MICROFABRICATED CELL INJECTOR
INJECTEUR DE CELLULES MICROFABRIQUE
Publication Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 10516
Publication Year: 2000

15/6/5 (Item 4 from file: 349)
00315351
IC-PROCESSED MICRONEEDLES
AIGUILLES MICROSCOPIQUES PRODUITES AU MOYEN DE CIRCUITS INTEGRES
Publication Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 6925
Publication Year: 1995

15/6/6 (Item 5 from file: 349)

00270044 **Image available**
METHODS AND APPARATUS FOR DNA SEQUENCING
PROCEDES ET APPAREIL DE SEQUENCAGE DE L'ADN
Publication Language: English
Fulltext Availability:
Detailed Description
Claims
Fulltext Word Count: 31565
Publication Year: 1994
?t15/3,ab/1,4,5

15/3,AB/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01261727
Method and apparatus for manufacturing a device
Verfahren und Vorrichtung zur Herstellung eines Gerats
Procede et dispositif pour fabriquer un appareil
PATENT ASSIGNEE:
Becton, Dickinson and Company, (2594831), 1 Becton Drive, Franklin Lakes, New Jersey 07417, (US), (Applicant designated States: all)
INVENTOR:
Powell, Kenneth G., 4513 Wood Valley Drive, Raleigh, North Carolina 27613, (US)
Monahan, Larry A., 501 South Meadow Road, Raleigh, North Carolina 27603, (US)
Sage, Burton H., Jr., 39 Zander Drive, Orina, California 94563, (US)
LEGAL REPRESENTATIVE:
von Kreisler, Alek, Dipl.-Chem. et al (12437), Patentanwalte, von Kreisler-Selting-Werner, Bahnhofsvorplatz 1 (Deichmannhaus), 50667 Koln, (DE)
PATENT (CC, No, Kind, Date): EP 1088642 A1 010404 (Basic)
APPLICATION (CC, No, Date): EP 118933 000901;
PRIORITY (CC, No, Date): US 408450 990929
DESIGNATED STATES: DE; ES; FR; GB; IT
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: B29C-045/37; B29C-033/42

ABSTRACT EP 1088642 A1
A device, preferably a micro-device (10), is molded from a plastic material by injection molding, compression molding or embossing. A microabrader (10) can be molded having **microneedles** (14) for abrading the stratum corneum of the skin to form an abraded site in the tissue for enhancing drug delivery. The micro-device (10) is molded using a mold assembly having a silicon molding surface (76). The silicon molding surface (76) can include a recess (78) corresponding to the desired shape and length of the **microneedles** (14). The silicon molding surface (76) enables **micron** and submicron size features to be molded from polymeric materials without the polymeric material adhering to the mold surface. Micro-devices having molded features having **micron** and submicron dimensions can be rapidly produced without the use of a release agent.
ABSTRACT WORD COUNT: 131
NOTE:
Figure number on first page: 5

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200114	357
SPEC A	(English)	200114	4114
Total word count - document A			4471
Total word count - document B			0
Total word count - documents A + B			4471

15/3,AB/4 (Item 3 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

00557181
MICROFABRICATED CELL INJECTOR
INJECTEUR DE CELLULES MICROFABRIQUE
Patent Applicant/Assignee:
ASTRAZENECA UK LIMITED,
GARMAN Andrew John,
SCANLON David John,
DODGSON John,
SHAW John Edward Andrew,
BRENNAN David,
CORLESS Anthony Robert,
TURNER Christopher Matthew,
Inventor(s):
GARMAN Andrew John,
SCANLON David John,
DODGSON John,
SHAW John Edward Andrew,
BRENNAN David,
CORLESS Anthony Robert,
TURNER Christopher Matthew,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200020554 A1 20000413 (WO 0020554)
Application: WO 99GB3330 19991007 (PCT/WO GB9903330)
Priority Application: GB 9821833 19981008; GB 9918614 19990807
Designated States: AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ TZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 10516

English Abstract
The invention relates to a device for, and method of, injecting small articles, in particular cells. More particularly, but not exclusively, the invention relates to an automated device for and method of injection of large numbers of cells. The invention also includes use of such a device, specifically in fields where low throughput of cell injection from current techniques has meant that such uses have not been viable.

French Abstract
L'invention concerne un dispositif et un procede permettant d'injecter de petits articles, en particulier des cellules. Cette invention concerne plus particulierement, mais pas exclusivement, un dispositif et un procede automatises permettant d'injecter un grand nombre de cellules. Cette invention concerne enfin l'utilisation de ce dispositif, notamment dans des domaines pour lesquels les techniques actuelles d'injection de cellules a faible rendement sont loin d'etre pratiques.

15/3,AB/5 (Item 4 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00315351
IC-PROCESSED MICRONEEDLES
AIGUILLES MICROSCOPIQUES PRODUITES AU MOYEN DE CIRCUITS INTEGRES
Patent Applicant/Assignee:
THE REGENTS OF THE UNIVERSITY OF CALIFORNIA,
Inventor(s):
LIN Liwei,
PISANO Albert,
Patent and Priority Information (Country, Number, Date):

Patent: WO 9533504 A1 19951214
Application: WO 95US7916 19950606 (PCT/WO US9507916)
Priority Application: US 94254328 19940606
Designated States: AM AT AU BB BG BR BY CA CH CN CZ DE DK ES FI GB GE HU JP KE KG KP KR KZ LK LT LU LV MD MG MN MW MX NO NZ PL PT RO RU SD SE SI SK TJ TT UA UZ VN KE MW SD SZ UG AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 6925

English Abstract
This invention is an IC processed **microneedle** including an interface region (11), and a shaft (14). A shell defines an enclosed channel to form the shaft. The shaft has ports to permit fluid movement therethrough. Microheaters, microdetectors, and additional devices may also be fabricated on the **microneedle** .

File 348:EUROPEAN PATENTS 1978-2002/Oct W04
(c) 2002 European Patent Office
File 349:PCT FULLTEXT 1979-2002/UB=20021031,UT=20021024
(c) 2002 WIPO/Univentio

Set	Items	Description
S1	230	MICRONEEDLE? ? OR (MICROMACHIN? OR MICROFABRICAT?)(5N)NEEDLE? ?
S2	1895	MICROCHANNEL? ?
S3	150	SUBSTRATE? ? (5N) PLANAR (S) PHOTORESIST? ?
S4	205049	HOLLOW OR CAVITY OR CAVITIES
S5	569911	MICROMETER? OR MICROMETRE? OR MICRON? ? OR UM OR UM2
S6	693608	SIDES OR SIDE OR SIDED
S7	43	IC='C25D-001/02'
S8	256	IC='C25D-005/02'
S9	0	S1 AND S7:S8
S10	11	S1 AND S2
S11	2	S10 AND S3
S12	5	S10 AND S2(S)S4
S13	3	S12 NOT S11
S14	11	S10 AND S5
S15	6	S14 NOT (S11 OR S13)

4/7/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014293698 **Image available**
WPI Acc No: 2002-114400/200215
Needle device for extraction of samples from living tissue for diagnostic purpose, has hollow non-silicon elongated shaft with channel configured to form macroneedle or microneedle provided with biosensor or actuator
Patent Assignee: UNIV UTAH RES FOUND (UTAH)
Inventor: ANDRADE J D; BARTHOLOMEUSZ D A; BRAZZLE J D ; FRAZIER A B
Number of Countries: 095 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200193930	A1	20011213	WO 2001US17838	A	20010601	200215	B
AU 200175138	A	20011217	AU 200175138	A	20010601	200225	

Priority Applications (No Type Date): US 2000208868 P 20000602
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200193930	A1	E	50	A61M-005/32	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW

AU 200175138	A		A61M-005/32	Based on patent WO 200193930

Abstract (Basic): WO 200193930 A1

NOVELTY - A hollow non-silicon elongated shaft with channel is configured to form macroneedle or microneedle (11). The channel connects the input and output ports provided at the respective ends and needle is provided with active component such as a biosensor (17) and actuator.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for array of active microneedles.

USE - For extraction of samples from living tissues for diagnostic purpose to deliver drug, medicine in biotechnology field, micro biochemical analysis system, physiological analysis system, drug delivery system, etc.

ADVANTAGE - Provision of biosensor enables to monitor metabolic levels during injection with minimum damage to tissues.

DESCRIPTION OF DRAWING(S) - The figure shows an explanatory view of the needle.

Needle (11)
Biosensor (17)
pp; 50 DwgNo 1A/14

Derwent Class: B07; P34
International Patent Class (Main): A61M-005/32

4/7/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013111595 **Image available**
WPI Acc No: 2000-283466/200024
Microneedle device for micro-biochemical analysis system has hollow non-silicon microneedle with microchannel(s) extending along it
Patent Assignee: UNIV UTAH RES FOUND (UTAH)
Inventor: BRAZZLE J D ; FRAZIER A B

Number of Countries: 089 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200016833	A1	20000330	WO 99US21509	A	19990917	200024	B
AU 9961515	A	20000410	AU 9961515	A	19990917	200035	
EP 1113832	A1	20010711	EP 99948307	A	19990917	200140	
			WO 99US21509	A	19990917		
JP 2002526273	W	20020820	WO 99US21509	A	19990917	200258	
			JP 2000573793	A	19990917		

Priority Applications (No Type Date): US 98101064 P 19980918
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200016833	A1	E	30	A61M-005/32	
AU 9961515	A			A61M-005/32	Based on patent WO 200016833
EP 1113832	A1	E		A61M-005/32	Based on patent WO 200016833
JP 2002526273	W		36	B81B-001/00	Based on patent WO 200016833

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW
Designated States (Regional): AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Abstract (Basic): WO 200016833 A1

NOVELTY - A microneedle device has a hollow non-silicon microneedle (32) with microchannel(s) extending along it.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(a) the device where the microneedle is on a surface of a planar substrate;

(b) a microneedle array device has microneedles as above on either a structural support member(s) (38) or a planar surface of a substrate; and

(c) fabricating a microneedle by depositing layers of metal and photoresist on a substrate.

USE - Micro-biochemical analysis system.

ADVANTAGE - The needles are more durable than needles made from etched silicon or chemical vapor deposited polysilicon.

DESCRIPTION OF DRAWING(S) - The figure shows a microneedle array pp; 30 DwgNo 2A/8

Derwent Class: B07; P34; P84; Q68
International Patent Class (Main): A61M-005/32; B81B-001/00
International Patent Class (Additional): B81C-001/00; B81C-003/00; G03F-007/20

5/26,TI/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014178268
WPI Acc No: 2001-662496/200176
Information and redemption system used in computer-based system, has clearing house which electronically transmits information or promotional offers of merchant to participating patrons

5/26,TI/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013897253
WPI Acc No: 2001-381466/200140
Everter and thread-through tool for attaching graft vessel to anastomosis device, has mechanism which expands end of graft vessel, and everts end of graft vessel over anastomosis device mounted on tool

5/26,TI/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.
013131273
WPI Acc No: 2000-303144/200026
Microchannel device for separating cells, etc. by electrical field flow fractionation has microchannel defined by patterned intermediate layer and substrates with electrically conductive layer

5/26,TI/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.
013111792
WPI Acc No: 2000-283663/200024
Microchannel electric detector for measurement of electrical characteristics, especially of cells, organelles and protein solutions, integrated on-chip

5/26,TI/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.
012965016
WPI Acc No: 2000-136867/200012
Disk drive feature indicator in disk cartridge used in computer

5/26,TI/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.
012020828
WPI Acc No: 1998-437738/199837
Vialess integrated inductive elements for electromagnetic applications - fabricated by the application of micromachining technology.

5/26,TI/8 (Item 8 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.
010552898
WPI Acc No: 1996-049851/199605
Enhancement of graphic features produced on paper - uses gray scale input data for transformation into sub-pixel sized marks that contain more gray scale levels than contained in input data

5/7/7 (Item 7 from file: 350)
DIALOG(R)File 350:Derwent WPIX
(c) 2002 Thomson Derwent. All rts. reserv.
012011165 **Image available**
WPI Acc No: 1998-428075/199836
Preparation of hollow metallic microchannel(s) - by electroplating around photoresist layer, followed by removing resist
Patent Assignee: UNIV UTAH RES FOUND (UTAH)
Inventor: FRAZIER B A; FRAZIER A B

Number of Countries: 023 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 9833032	A1	19980730	WO 98US1859	A	19980127	199836	B
AU 9860521	A	19980818	AU 9860521	A	19980127	199851	
US 5871158	A	19990216	US 97789013	A	19970127	199914	
US 5876582	A	19990302	US 97789013	A	19970127	199916	
			US 97928988	A	19970912		
EP 954738	A1	19991110	EP 98903868	A	19980127	199952	
			WO 98US1859	A	19980127		

Priority Applications (No Type Date): US 97789013 A 19970127; US 97928988 A 19970912
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 9833032	A1	E	20	F28F-003/12	
Designated States (National): AU CA JP KP					
Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE					
AU 9860521	A			F28F-003/12	Based on patent WO 9833032
US 5876582	A			C25D-001/02	Div ex application US 97789013
EP 954738	A1	E		F28F-003/12	Based on patent WO 9833032
Designated States (Regional): AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE					
US 5871158	A			A62C-002/08	

Abstract (Basic): WO 9833032 A

Hollow microchannels are prepared by: (a) depositing a seed layer and selectively electroplating to form a bottom wall of a microchannel; (b) selectively coating the top surface of each bottom wall with photoresist to a height corresponding to that of the inner height of the microchannel; (c) depositing a 2nd seed layer and selectively electroplating to form side and top walls until a desired thickness is achieved, then (d) removing the photoresist to reveal the microchannels. Also claimed is a device prepared by the method.

USE - Micropipette arrays and fluid dispensing microchannel array (claimed), may be used in engineering, earth and life science fields, biotechnology, microanalysis, gas and liquid chromatography, electrophoresis and polymerase chain reactions.

ADVANTAGE - The channel walls are durable and strong, and can be formed with a range of widths and heights. The channels can be formed without degrading the substrate's surface planarity and the fabrication techniques allow the incorporation of electronic circuitry into the devices.

Dwg.1-4/7

Derwent Class: B04; D16; G06; L03; M11; P35; Q78; T04; U14
International Patent Class (Main): A62C-002/08; C25D-001/02; F28F-003/12
International Patent Class (Additional): C25D-005/02

File 350:Derwent WPIX 1963-2002/UD,UM &UP=200270
File 344:Chinese Patents Abs Aug 1985-2002/Oct
File 347:JAPIO Oct 1976-2002/Jun(Updated 021004)
File 371:French Patents 1961-2002/BOPI 200209

Set	Items	Description
S1	6	AU='FRAZIER A B'
S2	4	AU='FRAZIER A'
S3	2	AU='BRAZZLE J D'
S4	**2**	**S1:S2 AND S3**
S5	**8**	**S1:S3 NOT S4**

4/6/1 (Item 1 from file: 348)
01390434
ACTIVE NEEDLE DEVICES WITH INTEGRATED FUNCTIONALITY

4/6/3 (Item 1 from file: 349)
00860677 **Image available**
ACTIVE NEEDLE DEVICES WITH INTEGRATED FUNCTIONALITY

5/6/1 (Item 1 from file: 348)
01152052
ELECTRICAL DETECTOR FOR MICRO-ANALYSIS SYSTEMS

5/6/2 (Item 2 from file: 348)
01151389
MICROMACHINED ELECTRICAL FIELD-FLOW FRACTIONATION SYSTEM

5/6/3 (Item 3 from file: 348)
00982171
VIALESS INTEGRATED INDUCTIVE ELEMENTS FOR ELECTROMAGNETIC APPLICATIONS

5/6/4 (Item 4 from file: 348)
00980450
METHOD FOR PREPARING HOLLOW MICROCHANNELS AND PRODUCT

5/6/5 (Item 1 from file: 349)
00554257
ELECTRICAL DETECTOR FOR MICRO-ANALYSIS SYSTEMS
Publication Year: 2000

5/6/6 (Item 2 from file: 349)
00553534 **Image available**
MICROMACHINED ELECTRICAL FIELD-FLOW FRACTIONATION SYSTEM
Publication Year: 2000

5/6/7 (Item 3 from file: 349)
00443823 **Image available**
VIALESS INTEGRATED INDUCTIVE ELEMENTS FOR ELECTROMAGNETIC APPLICATIONS
Publication Year: 1998

5/6/8 (Item 4 from file: 349)
00442568 **Image available**
METHOD FOR PREPARING HOLLOW MICROCHANNELS AND PRODUCT
Publication Year: 1998

File 348:EUROPEAN PATENTS 1978-2002/Oct W04
File 349:PCT FULLTEXT 1979-2002/UB=20021031,UT=20021024

Set	Items	Description
S1	10	AU='FRAZIER A BRUNO'
S2	2	AU='FRAZIER BRUNO A'
S3	4	AU='BRAZZLE':AU='BRAZZLE JOHN D'
S4	**4**	**S1:S2 AND S3**
S5	**8**	**S1:S3 NOT S4**

6/7/1 (Item 1 from file: 155)

DIALOG(R)File 155:MEDLINE(R)
10742806 20293766 PMID: 10833856

Micromachined pipette arrays.

Papautsky I; Brazzle J ; Swerdlow H; Weiss R; Frazier A B
Department of Electrical and Computer Engineering and Computer Science, University of Cincinnati, OH 45221, USA. ian.papautsky@uc.edu

IEEE transactions on bio-medical engineering (UNITED STATES) Jun 2000, 47 (6) p812-9, ISSN 0018-9294 Journal Code: 0012737
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed

In this paper, the design and characterization of batch fabricated metallic micromachined pipette arrays is described. The process used to fabricate the micromachined pipette arrays (MPA) includes p+ etch-stop membrane technology, anisotropic etching of silicon in potassium hydroxide, sacrificial thick photoresist micromolding technology, and electrodeposition. Arrays of one to ten pipettes have been fabricated using nickel as the structural material and palladium as the biocompatible coating of inside walls. The inner dimensions of the individual pipettes fabricated to date range from 30 microns to 1.5 mm in width, 0.5 mm to several cm in length, and 5-50 microns in thickness. The center-to-center spacing of these pipettes varies from 100 microns to several centimeters. The MPA have a number of advantages when compared to the current micropipette technology, including the ability to transfer precise volumes of samples in the submicroliter range; the ability to manipulate samples, reagents, or buffers in a highly-parallel fashion by operating hundreds of individual pipettes simultaneously; and the compatibility with the submilimeter center-to-center dimensions of the microscale biochemical analysis systems. The application of the MPA to high lane density slab gel electrophoresis is explored. Sample wells are formed in agarose gels by using micromachined combs (solid MPA) at center-to-center spacing ranging from 250 microns to 1.9 mm. The samples are loaded using the MPA. The results of the micro-gel separations compare favorably with the standard mini-gel separations and show a twofold increase in the number of theoretical plates as well as a sixfold increase in lane density.

Record Date Created: 20000615

6/7/2 (Item 2 from file: 155)
DIALOG(R)File 155:MEDLINE(R)
10503760 20043373 PMID: 10576073

Micromachined needle arrays for drug delivery or fluid extraction.

Brazzle J ; Papautsky I; Frazier A B
Department of Bioengineering, University of Utah, Salt Lake City, USA. brazzle@eng.utah.edu

IEEE engineering in medicine and biology magazine : the quarterly magazine of the Engineering in Medicine & Biology Society (UNITED STATES) Nov-Dec 1999, 18 (6) p53-8, ISSN 0739-5175 Journal Code: 8305985
Document type: Journal Article
Languages: ENGLISH
Main Citation Owner: NLM
Record type: Completed

Micromachined needle arrays have been designed, fabricated, and characterized. The design includes arrays of 25 needles with fluid coupling channels and dual structural supports. Numerical modeling of fluid flow characteristics was performed, demonstrating that the needle coupling channels redistribute flow when the input or output ports are fully restricted. Micromachining technologies have been used to batch fabricate

hollow metallic fluid coupled needle arrays. **The significance of this work includes the development of the hollow metallic micromachined needle arrays** for biomedical applications, as well as a discussion of structural, fluidic, and biological design considerations. The micromachined needle array has many advantages, including (a) reduced trauma at penetration site (small size), (b) greater freedom of patient movement (minimal penetration), (c) a practically pain-free drug delivery device (distribution of force), (d) precise control of penetration depth (needle extension length), and (e) they can be stacked and packaged into a 3-D device for fluid transfer.
Record Date Created: 19991217

6/7/4 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

07540098 Genuine Article#: 179AQ Number of References: 37
Title: Laminar fluid behavior in microchannels using micropolar fluid theory
Author(s): Papautsky I (REPRINT) ; Brazzle J ; Ameel T; Frazier AB
Corporate Source: UNIV UTAH,DEPT BIOENGN, 50 S CENT CAMPUS DR, ROOM 2480/SALT LAKE CITY//UT/84112 (REPRINT); UNIV UTAH,DEPT ENGN MECH/SALT LAKE CITY//UT/84112; UNIV UTAH,DEPT ELECT ENGN/SALT LAKE CITY//UT/84112
Journal: SENSORS AND ACTUATORS A-PHYSICAL, 1999, V73, N1-2 (MAR 9), P 101-108
ISSN: 0924-4247 Publication date: 19990309
Publisher: ELSEVIER SCIENCE SA, PO BOX 564, 1001 LAUSANNE, SWITZERLAND
Language: English Document Type: ARTICLE
Abstract: In this paper, we describe microchannel fluid behavior using a numerical model based on micropolar fluid theory and experimentally verify the model using micromachined channels. The micropolar fluid theory augments the laws of classical continuum mechanics by incorporating the effects of fluid molecules on the continuum. The behavior of fluids was studied using surface micromachined rectangular metallic pipette arrays. Each array consisted of 5 or 7 pipettes with widths varying from 50 to 600 mu m and heights ranging from 20 to 30 mu m. A downstream port for static pressure measurement was used to eliminate entrance effects. A controllable syringe pump was used to provide flow while a differential pressure transducer was used to record pressure drop. The experimental data obtained for water showed an increase in the Darcy friction factor when compared to traditional macroscale theory, especially at the lower Reynolds number flows. The numerical model of the micropolar fluid theory predicted experimental data better than the classical Navier-Stokes theory and the model compares favorably with the currently available experimental data. (C) 1999 Elsevier Science S.A. All rights reserved.

6/7/5 (Item 2 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

06781583 Genuine Article#: ZR276 Number of References: 39
Title: A low-temperature IC-Compatible process for fabricating surface-micromachined metallic microchannels
Author(s): Papautsky I (REPRINT) ; Brazzle J ; Swerdlow H; Frazier AB
Corporate Source: UNIV UTAH,DEPT BIOENGN/SALT LAKE CITY//UT/84112 (REPRINT) ; UNIV UTAH,DEPT ELECT ENGN/SALT LAKE CITY//UT/84112
Journal: JOURNAL OF MICROELECTROMECHANICAL SYSTEMS, 1998, V7, N2 (JUN), P 267-273
ISSN: 1057-7157 Publication date: 19980600

Publisher: IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC, 345 E 47TH ST, NEW YORK, NY 10017-2394
Language: English Document Type: ARTICLE
Abstract: In this paper, a low-temperature integrated-circuit (IC)-compatible process for fabricating metallic microchannels is described. Arrays of 1-100 metallic microchannels have been fabricated on silicon and glass substrates. The process can be extended to many planar substrate materials including polymers and ceramics. The microchannels are formed using microelectro-formed metals. The microchannels demonstrated in this paper use nickel as the structural material and gold as the surface coating on the inside walls of the microchannels. The inner dimensions of the individual microchannels fabricated to date range from 30 mu m to 1.5 mm in width, 0.5 mm to several centimeters in length, and 5-100 mu m in thickness. The wall thickness ranges from 5 to 50 mu m. The microchannel fabrication technology enables the fabrication of surface microchannels with a relatively large cross-sectional area. The metallic microchannels can be fabricated to extend from the substrate edge. Interfacing schemes are given for attaching external pressure feeds.

File 155:MEDLINE(R) 1966-2002/Nov W1
File 5:Biosis Previews(R) 1969-2002/Oct W4
File 73:EMBASE 1974-2002/Oct W4
File 34:SciSearch(R) Cited Ref Sci 1990-2002/Nov W1
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec

Set	Items	Description
S1	25	AU='FRAZIER A B':AU='FRAZIER A BRUNO'
S2	12	AU='FRAZIER A.B.'
S3	24	AU='FRAZIER AB'
S4	8	AU='BRAZZLE J':AU='BRAZZLE J.'
S5	8	S1:S3 AND S4
S6	**5**	**RD (unique items)**
S7	53	S1:S4 NOT S5
S8	551	MICRONEEDLE? ?
S9	0	S7 AND S8